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Meet the editor

Prof. Dr. Jolita Vveinhardt is a PhD of Social Sciences in the field of Management Science. She works at two universities in Lithuania in the position of a professor and senior scientist. In the scientist role, she heads three scientific groups: "Neuro-Relationships" (Lithuanian Sports University), "Managerial Solutions to Violence in Sport" (Lithuanian Sports University), "The Group of Interdisciplinary Research on Working Environment" (Vytautas Magnus University). She successfully supervised and implemented three scientific research projects. Currently she is the head of an international scientific research project. Prof. Dr. Jolita Vveinhardt is the author and co-author of three monographs, two science studies, one textbook, and five educational books. She has published more than 200 scientific articles, 80 of which were published in peer-reviewed journals of Web of Science Core Collection (Clarivate Analytics) database and read more than 50 papers in national and international scientific conferences. She is a member of editorial boards of 14 scientific periodicals. Prof. Dr. Jolita Vveinhardt is a member of the International Baltic Management Development Association, Lithuanian Educational Research Association, Lithuanian Association for Quality Management and Innovations, Lithuanian Trauma Psychology Association, European Society for Traumatic Stress Studies, Lithuanian Neuroscience Association, Lithuanian Ergonomics Association, Lithuanian Project Management Association and Federation of European Neuroscience Societies. She teaches the following subjects for Master's degree students: Contemporary Organization Theories and Novelties of Management Science. Prof. Dr. Jolita Vveinhardt supervised 4 successfully defended doctoral dissertations, she is currently supervising three doctoral students. Her main research interests are destructive relationships among employees (mobbing, bullying, nepotism, favoritism, social loafing, social ostracism, organizational cynicism, cronyism, protectionism), business ethics, organizational culture, management culture, organizational climate, personal and organizational values, value congruence, corporate social responsibility, decision-making, neuromanagement, etc.

Contents

Preface

This book presents works from scientists from different countries that gathers the scientific idea of research on organizational culture of recent years in order to expand the possibilities of applying organizational culture theory in different cultural contexts. Therefore, the presentation of a brief retrospective review of research on organizational culture is followed by simulation, comparison of the influence of national cultures on organizational management, and finally by a detailed discussion of different challenges for management and leadership.

In the introductory chapter of this book, the key questions are raised: How much underused potential does science have investigating organizational culture? Why will research on organizational culture remain relevant? What is the extent of the scientific community's interest in the phenomenon of organizational culture? What thematic changes in the spectrum of research on organizational culture prevail? The readers will find considerations trying to find answers to the said questions in the introductory chapter prepared by Jolita Vveinhardt, the editor of this book.

In the second chapter ("Model of Culture for Innovation"), Julia C. Naranjo-Valencia and Gregorio Calderon-Hernández offer a holistic innovative culture model that, in addition to addressing cultural traits and their determinants, as is done in other models, considers management competencies and organizational capacities that are required to conform to cultural traits to achieve innovative behavior on the part of the organization's individuals.

In the third chapter ("The Role of National Cultures in Shaping the Corporate Management Cultures: A Three-Country Theoretical Analysis"), Mohammad Ayub Khan and Laurie Smith Law analyze the influence of national culture on organizational management cultures by comparing Pakistani, Mexican and the USA national cultures.

In the fourth chapter ("Project Organizational Culture Framework in Construction Industry"), Luong Hai Nguyen and Tsunemi Watanabe draw attention to the fact that the organizational culture of the project in various studies was acknowledged as an important factor determining the success or failure of the project. However, research on the development of organizational culture models is mainly applied to general business conditions, while at the project level, they were not developed for construction organizations; therefore, the study seeks to fill in the existing gap.

In the fifth chapter ("Organizational Culture as a Determinant of Construction Companies' Competitiveness: Case Study of Croatia"), Ivana Šandrk Nukić analyzes challenges of the competitive advantage and behavioral changes arising in the country in the transitional period, when the country became part of a united European market. The author also discusses

wishes of currently working engineers along with expectations of “Generation Y” in order to predict trends of Croatian construction industry and necessary changes.

In the sixth chapter, (“Reflex-Adaptive Organizational Structure in the Implementation of Large-Scale Projects”), Andrey Morozenko presents the results of research on the study and creation of a new class highly effective organizational structure of the reflex-adaptive type in the context of implementation of a large-scale project. The methodology for the formation of reflexively adaptive organizational structure is presented, paying special attention to quantitative assessment of the flexibility and stability of organizational structures.

In the seventh chapter (“Leadership Competencies Affecting Projects in Organization”), Riaz Ahmed focuses on both leader’s competences and project management in relation to organizational culture. It is emphasized that over the last few decades, organizational culture was analyzed in the context of project management, but the success of the projects in various organizational environments is still not ensured; therefore, the author provides proposals that fill in existing gaps.

In the eighth chapter (“Transformational Leadership and Organizational Culture: Keys to Binding Employees to the Dutch Public Sector"), Saniye Çelik analyzes the role of transformational leadership and organizational culture in the public sector. It is concluded that transformational leadership and organizational culture are the key to the binding of employees to the public sector, while inclusive organizational culture that has space for diversity is a decisive factor for the success of interventions used in public organizations.

We hope that this book will be valuable both for scientists and practitioners dealing with organizational culture development problems.

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Chapter 1

Introductory Chapter: Organizational Culture - How Much Underused Potential Does Science Have?

Jolita Vveinhardt

Additional information is available at the end of the chapter

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1. Why will research on organizational culture remain relevant?

A lot of popular tips and ideas that offer an organization the success in one or another field of its activity and are presented as deus ex machina reach the leaders of the organizations currently; as a result, it often becomes difficult to get a handle on this abundance.

However, quite a few executives or founders of organizations are surprised that the result did not meet their expectations. Why? Usually, this happens because of the fact that even in the twenty-first century, there are some people who look at the organization from the position that has been outdated for hundreds of years, as at a lifeless machine, where after the improvement of one or another detail, it should work better.

Future-oriented organizations, and more specifically, the people who manage them and work for them, should see the organization as an intellectual and smart entity, that consists of many minds, values and beliefs.

The assumptions of this approach are based on the researches that are becoming particularly active in recent decades, having understood that organizational culture is a significant phenomenon, explaining both the management and organizational dynamics and development [1], although the history of scientific exploration of the phenomenon comprises just a few decades, and it hardly received the attention of researchers until the beginning of the 1980s [2]. However, the comparatively short history of the research results from the fact that the areas of research investigating different aspects of life and management of the organization are not only intertwined and enrich one another but also allow presuming incredible results of these processes.

Drucker [3], observing the processes in the organizations at the end of the last century, accurately identified that creative human intellectual activity will become one of the most important investments of organizations in the new century and results of other studies support it by five key factors of organizational creativity, such as organizational climate, leadership style, organizational culture, resources and skills and structure and systems of an organization [4]. Reviews of newer studies highlight the impact of organizational culture on various knowledge management processes and their links with organizational performance [5, 6], considering the close relationship with the innovativeness of the organizations [7, 8], etc.

On the other hand, the studies do not yet provide unambiguous answers to the questions that arise to both practitioners in the management of organizations and scientists researching the phenomenon of organizational culture. Although some researches support the significance of organizational culture for performance, Scott et al. [9] who studied the researches of a strong culture and efficiency of organizational activities noted the fact that these relationships are not always confirmed; therefore, in order to find out the relationship between organizational culture (cultures) and activity (activities), much greater methodological resourcefulness is necessary. The studies miss unambiguous answers on how to manage cultural diversity in organizations [10]. In addition, Johnson et al. [11] argue that there is no single recipe of organizational culture change suitable for all. According to the authors, attention to context with key features including diagnosis and evaluation of culture, a combination of support from leaders and others in the organization and strategies to embed the culture change is important for the change process to happen. In this context, the analysis of studies conducted by Vom Brocke and Sinnl [12] shows that culture in business process management requires a more comprehensive holistic approach. And these are only some of the aspects of the broad palette of the exploration of the phenomenon of organizational culture, indicating the number of questions that still remain unanswered. It is difficult to find at least one area of organizational activities that would not be influenced by organizational culture, which is demonstrated by the directions of research conducted in recent decades and the abundance of this research.

2. The scientific community's interest in the phenomenon of organizational culture

Publications of the Web of Science Core Collection (Clarivate Analytics) (hereafter WoS) database were selected for the analysis of scientific research. The search criteria were keywords 'organizational culture' in title, in topic and in search by highly cited in field (**Table 1**). Since the research starting from 1990 can be found in the WoS database, the statistics of publications from 1990 to 2018 was reviewed. The review of the change of the number of publications on the topic in the past 30 years shows the trends of growth of the number of studies indicating the scientific community's interest in this phenomenon.

Thus, from 1990 to the present day in 2018, organizational culture researches (according to the title search) were published in 2084 publications (according to the topic search in 16,382, from which 81 are highly cited in field). All of them show a non-decreasing interest in the

Year	Title	Highly cited in field	Topic	Highly cited in field	Year	Title	Highly cited in field	Topic	Highly cited in field
2018	23	0	296	0	2003	47	0	343	0
2017	194	0	1710	9	2002	23	0	289	0
2016	195	0	1656	8	2001	20	0	249	0
2015	183	0	1573	5	2000	54	0	276	0
2014	106	0	1018	7	1999	28	0	244	0
2013	94	1	1039	11	1998	36	0	240	0
2012	128	0	994	6	1997	43	0	236	0
2011	144	0	1011	7	1996	35	0	195	0
2010	114	0	918	10	1995	33	0	183	0
2009	107	0	803	8	1994	32	0	159	0
2008	99	0	724	5	1993	26	0	127	0
2007	79	0	607	5	1992	37	0	124	0
2006	58	0	507	0	1991	33	0	71	0
2005	41	0	393	0	1990	20	0	24	0
2004	52	0	373	0					

Source: own.

Table 1. Statistics of research published in 2008–2018 and 1990–2000.

phenomenon of organizational culture, but it should be noted that the dynamics of the change in highly cited prompts that are far from all research conducted during this period are assessed equally highly in the scientific community. Further, it is worthwhile discussing how the spectrum and topics of research on the organizational culture were changing during these years, disclosing new aspects of this phenomenon.

3. Thematic changes in the spectrum of research on organizational culture

Publications of the year 2018, i.e. 23 publications (group 1), and research papers published in 1990, i.e. 20 publications (group 2), were selected for further analysis. Review of organizational culture studies of 2018 is presented in **Table 2**.

Thus, 23 publications have been registered in the WoS database in 2018 until May; however, not only the formal dates but also the fact that the researches have to go a long way before publishing must be taken into account. In any case, when looking at both the geography of the published researches (the USA, Jordan, India, Brazil, Malaysia, Turkey, the Czech Republic,

Researches of organizational culture and insights	Document type	Source
Influence of organizational culture on innovativeness is examined. While organizational culture was found to have negative relationship with innovativeness, organizational resources showed a significant positive relationship with innovativeness among the shipbuilding companies	Article	[13]
Influence of organizational culture on employees' attitude is analyzed. The impact of organizational culture affecting performance was found to be the main issue that merits attention from this research	Article	[14]
Associations between teamwork, innovation, orientation to results, attention to detail and environmental performance management model are examined. It is stated that teamwork is positively associated with the extent use of environmental activity analysis, innovation is positively associated with the extent use of both environmental activity cost analysis and environmental activity-based costing and attention to detail is positively associated with the extent use of environmental activity-based costing	Article	[15]
This is an empirical research of organizational culture and work and environmental learning transfer factors in organizations. Flexible organizations (defined as mainly clan and/or adhocracy cultures) support learning transfer environment more than stable organizations (defined as market and/or hierarchy cultures)	Article	[16]
The relationships of four elements of organizational culture, such as trust, employee communication, reward, management, learning and development, organizational socialization and knowledge transfer in the public sector organizations, are examined. According to the authors, socialization is found to play a moderating role in all the hypothesized relationships except between reward and knowledge transfer	Article	[17]
The relationship between organizational culture and early mortality of the patients of healthcare institutions with HIV is examined. It was found that deliberate efforts to improve individual health facility leadership and inculcate an adhocratic culture may lower mortality and morbidity	Article	[18]
The influence of supervisor's job insecurity on the subordinates' work was investigated; it was also aimed to test the moderating role of organizational culture between supervisor's job insecurity and the subordinates' prosocial voice. Results of this research foster the creation of an organizational culture, allowing subordinates to challenge their supervisor's decisions	Article	[19]
Authors researched relationships among green organizational culture, green innovation and competitive advantage in the hotel industry. It was found that green organizational culture has a positive effect on green innovation and competitive advantage	Article	[20]
A model in which the firm's cultural fit changes with the sequence of knowledge management-based business processes including sharing, learning, evaluation and production is presented and then analytically investigated the design of knowledge sharing rewards as well as the business process sequence to shape a firm's organizational cultural fit and maximize its profit	Article	[21]
The relationship of business process management with the types of organizational culture is examined. Organizations perform more successfully when, for example, the business process management initiative is rolled out in the entire organization if the organization has clan, market or hierarchy culture, etc.	Article	[22]
The reasons for which academics quit jobs, in the context of the impact of leadership, organizational commitment and organizational culture are examined. It is concluded that the leaders should recognize the leadership impact, as leaders' behavior can motivate the commitment of higher school employees and reduce the turnover intentions	Article	[23]

Researches of organizational culture and insights	Document type	Source
The role of organizational culture, which is characterized by emotional commitment and job satisfaction in public sector organizations, is studied. It was found that bureaucratic culture negatively affects organizational commitment and the impact of affective commitment on employees' job satisfaction is moderated by supportive and innovative cultures	Article	[24]
The relationship of organizational culture and performance is investigated. The research conducted by the authors provides supporting empirical evidence for the culture-performance link by identifying the principle culture value characteristics (strength and unbalance), which exert both direct and interaction effects on the introvert and extrovert aspects of firm performance	Article	[25]
The impact of organizational culture on knowledge management is analyzed by examining the impact of job satisfaction in banking Results of the research show that the weak and unstable organizational culture and knowledge management development may adversely affect the development of the sector	Article	[26]
Authors research how the disciplinary power is manifested and interpreted by teachers in the face of the elements of the organizational culture in private higher education institutions. It was found that the quality of teaching is weaker when the teacher becomes a mere executor of teaching programmes with reduced autonomy and control of their activities	Article	[27]
The authors examine the theory of public value, informal professional networks and organizational culture. Based on structural equation, the obtained results show that informal professional networks are positively associated with higher discretionary power and a proactive asset maintenance organizational culture	Article	[28]
It is examined how organizational innovation can be accelerated by supporting management structures and organizational climate, taking into account the innovative examples of universities in the world. On the basis of the results of the research, the authors state that universities and research institutes should draft and implement guidelines where leaders with certain traits and norms can play a role to nourish an environment where stakeholders think outside the box, with learning and knowledge creation and proactive contribution beyond responsibilities, obligations and compulsion	Article	[29]
Authors research the contribution of interorganizational relations (including suppliers and customers) to the organizational cultural change. It was found that interorganizational culture is developed as a system of symbols and meanings, which is shared by groups of different organizations or persons during the transition period, because cultural fragmentation perspectives are predominant	Article	[30]
The author draws attention to the fact that religion is a pervasive organizing framework and in terms of communication, its role in the socialization processes has to be understood and evaluated	Article	[31]
The influence of organizational culture and climate on the services provided by healthcare institutions is studied. It is noted that the degree of concordance between administrators and clinicians in their reports of organizational culture and climate may have implications for research design, inferences and organizational intervention	Article	[32]
Organizational culture and climate studies and the role of the national culture are discussed. The organizations seeking to become prospective are recommended to integrate modern climate and cultural way of thinking and scientific research in this area into their practice	Article	[33]
The authors of the research measure organizational culture, divided into three aspects (bureaucratic, supportive and innovative), taking into account the demography of respondents. It was found that gender differences did not have a significant impact on evaluation of organizational culture, unlike the age criteria	Article	[34]

Researches of organizational culture and insights	Document type	Source
Government support and influence of organizational culture on sustainable construction are examined. Positive relationship between adhocracy culture and sustainable construction was found; however, government support was found to moderate the relationship between adhocracy culture and sustainable construction, while an insignificant interaction effect was found between market orientation and sustainable construction	Article	[35]

Source: own.

Table 2. Researches of organizational culture in publications of 2018.

etc.), at the areas of activity of the investigated organizations and at the topics, we can see that considerable attention is also given to organizations operating in developing markets, covering a wide range of organizational activities and impact on the society in the context of organizational culture in recent years. In response to the challenges faced by organizations, researchers turn their attention to the interactions of organizational culture with the efficiency of the organization, management of activity and leadership problems. The relationship with employees is particularly highlighted, as well as their response to actions of the organization. Knowledge management, responsibility to the stakeholders, relations with them, etc. are also emphasized. Aspects of organizational culture and climate and classical distribution of organizational culture, on the basis of which researches are carried out in modern organizations, remain relevant in research perspective, together with the emerging understanding of the significance of networks of relationships between persons within and outside organizations on organization culture, which provides the background for update of theoretical approaches. Despite abundant research to examine organizational culture and existing theories, the contexts of national social and cultural distinctions provide new aspects and expand the knowledge of the analyzed phenomenon.

Thus, in comparison with the papers, which were published in 1990 (**Table 3**), we see how the thematic field expanded on the basis of measurement and assessment of organizational culture developed by the researches in recent decades, strengthened by organizational culture impact on innovation, knowledge management and relationships not only within an organization but also between different organizations.

A considerable part of published papers were reviews of researches significant for the development of theory. Schein's organizational culture system, distinguishing in this context, undoubtedly influenced the subsequent researchers, alongside grounding the relationships of organizational culture and organizational climate, leadership, laying the foundations of measuring and interpreting, etc. The insights of Hofstede [55–57] about the impact of the national culture on organizational culture opened new areas of research that expand the understanding of organizational culture, as well as raise new objectives to the scientists researching the phenomenon and provide new opportunities to international companies to apply national specificities and differences in practice [58, 59, 33]. So, on the one hand, this brief comparison of the episodes of research of 1990 and 2018 shows how scientists' view penetrated into the depth and broadened in response to the emerging challenges. On

Results of researches	Document type	Source
It was determined that in volunteer organizations security-oriented normative beliefs are negatively related to both fund-raising success and to staff job attitudes	Article	[36]
The results of this research indicate that people who interacted with each other had similar interpretations of organizational events and that members of different interaction groups attached qualitatively different meanings to similar organizational events	Article	[37]
The author, based on practical experience in the steel industry, grounds the role of the organizational culture to organizational changes	Note	[38]
Organizational culture is defined as a system of shared values which produces normative pressure inside organizations, affects motivation or members of the organization and enhances their commitment	Article	[39]
With reference to Schein, the meaning of organizational culture and leadership to organizational activity is highlighted	Book review	[40]
It is stated that the concept of 'rite' developed by an anthropologist nearly a century ago has current value for school organizational culture	Article	[41]
It was determined that measurements of employee values differed more according to the demographic criteria of nationality, age and education than according to membership in the organization	Article	[42]
The authors present a quantitative approach in measuring and interpreting organizational culture based on established norms and expected behavior, by supplementing methodology of organizational culture researches	Article	[43]
It is stated that there is increased dependence of academic science on external resources with attendant consequences for academic culture	Article	[44]
Members of an organization are confronting contradictory management signals, which cause a problem of double bind phenomenon. According to the author, understanding the double bind phenomenon should be seen as being important for managing organizations in general and for the change and the management of change in particular	Article	[45]
A significance of organizational culture's structural elements, functions and thinking features that are distinguished in the book is highlighted	Book review	[46]
In the theories of organizations, a new concept of organizational health by relating it with culture and assessing the factors influencing employees' health is grounded	Editorial material	[47]
The demand for new ideas on effective management in a society creates a favorable medium for development of organizational culture theory	Article	[2]
By analyzing friendship patterns, it is stated that the control of organizational diversity may be as much an interpersonal initiative as it is a prerogative of management manipulation	Article	[48]
The author's attitude to how a culture should be defined and analyzed in the field of organizational psychology is presented	Review	[49]
By assessing the fact that managers of organizations must deal with high amounts of uncertainty, a discussion in the context of organizational culture how it is related to management science or management is developed	Note	[50]
Attempts to reform organizational culture in the Chinese national context are discussed	Proceeding paper	[51]

Results of researches	Document type	Source
The authors state that engineers who want to manage and change organizational culture must become comfortable with hoopla and symbolism to add drama and life to their words and plans	Proceeding paper	[52]
In complex a significance of employees' perception on ethical behavior, organizational culture and communication with managers is grounded	Proceeding paper	[53]
In the context of organizational culture, the issues of ergonomics, group relationship, employees' development and managers' training are analyzed. The focus is on the relationship of VDT and employees' health	Proceeding paper	[54]

Source: own.

Table 3. Organizational culture research directions in the publications of 1990.

the other hand, it shows the complexity and multidimensionality of the phenomenon of organizational culture, and it becomes the untapped potential for new studies.

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Chapter 2

Model of Culture for Innovation

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Additional information is available at the end of the chapter

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Abstract

In the current economic panorama, innovation is considered to be an important source of sustainable competitive advantage. The literature indicates that organizational culture is one of the most important factors in innovation stimulation, given that influencing employee behavior promotes the acceptance of innovation as a fundamental organizational value and employee commitment to it. As such, organizations should concentrate on promoting an innovative culture that permits the institutionalization of innovation, which may occur by way of planned action or by means controlled by leaders or indirect mechanisms, such as structures, procedures, or institutional policy declarations. The importance of an innovative culture model which serves as a basis for cultural transformation emerges therefrom. Previous investigations have addressed innovative culture models focused on cultural traits and/or cultural determinants. The present study offers a holistic innovative culture model that in addition to addressing cultural traits and their determinants, as is done in other models, and takes into account management competencies and organizational capacities that are required to conform to cultural traits, to achieve innovative behavior on the part of the individuals of the organization.

Keywords: organizational culture, innovation, innovative culture, cultural traits, model innovative culture

1. Introduction

In a competitive global market, innovation is the source of a sustainable competitive advantage and has a significant impact on organizational results [1, 2]. Additionally, it is considered the basis for economic development and higher-than-average profits in the sector [3].

High R&D investment is insufficient to foster innovation. There must also be a culture present which motivates innovation, as well as an atmosphere which favors creativity, and eliminates obstacles to its success [12, 25]. The relevance of culture in innovation is explained by its individual characteristics, including uncertainty, high levels of risk, and unpredictability in innovation [4].

It has been documented that an appropriate culture stimulates product innovation [5–7] as much as process and marketing innovation [3, 8]. Similarly, it can stimulate incremental innovation as well as radical or ambidextrous innovation [9, 10].

Consequently, given the significant influence of organizational culture on a company's propensity to innovate [11], and considering that it may become either a facilitator or inhibitor, organizational effort cannot be limited to the generation of new products or processes but rather should focus on the promotion of an innovative culture, which helps to institutionalize innovation [12].

Organizational culture is the set of meanings, basic presumptions, values, and beliefs which are shared by the members of an organization [13, 14] and is the way that things are done here [9]. It identifies the members of an organization, guides its behavior [15, 16], and influences the way in which the organization does business and reacts to the environment [17, 18]. One important role of culture is guiding perception toward that which is important, desirable, acceptable [19] and, as such, may be compensated.

Although there is no consensus regarding the possibility of intentional intervention, there is a large group of authors who believe it possible [14, 15, 20, 21]. Such an intervention could be performed directly, via planned action and means which can be controlled either by leaders or indirect mechanisms like structures, procedures, or institutional policy declarations. This is the basis for considering the creation of an innovative culture model which can be developed by companies and which would be the foundation for cultural transformation. This is the goal of the present chapter.

Although many authors have addressed the topic of innovative culture [9, 22–24], it is thought that an operational formulation that facilitates its implementation on an organizational level is still lacking [12]. The present study's main contribution is the proposal of a holistic innovative culture model. In addition to addressing cultural traits and its determinants, as done in other models, it further takes into account management competencies and organizational capacities that are required to conform to cultural traits, to achieve innovative behavior on the part of individuals and the organization.

For the construction of the innovative culture model, a literature review of descriptive nature was performed and subsequently contrasted with the results of the authors' consulting activities.

This chapter is structured as follows: it begins by describing the concept of innovative culture, the different approaches to the said culture that have been examined in the literature, and the dimensions which have been suggested by various authors. Next, the methodology is presented. Later, the proposed model is provided, and, finally, conclusions are drawn.

2. Review of literature: approach to innovative culture

Innovative culture can be defined as the multidimensional atmosphere which includes the values, assumptions, and beliefs shared of the members of an organization that cause it to be prone to explore new opportunities and knowledge and generate innovation, in order to respond to market demands [12, 25–27].

The concept additionally includes the intention to innovate, the organization's market orientation, and organizational learning but further involves the existence of certain specific features which are many and various, in accordance with the author who proposes them [4, 28].

Innovation culture is considered to be an intangible strategic resource [27] which leads to increased adaptability. As such, it generates adaptive advantages as it promotes collaboration and interaction with the environment of the company [29].

Additionally, it promotes initiative instead of obedience and dependence [30] and stimulates practices like creativity, freedom of thought, openness, and flexibility, all of which increase innovative activity [31].

Various authors have studied innovative culture, the majority of them concentrate on individual features and behaviors to understand this phenomenon, although some have used more holistic models which include organizational factors. In **Table 1**, the components of

[22]	Structure, strategy, support mechanisms, behavioral patterns, and communication
[81]	Innovative intention, infrastructure to support innovation, market orientation, and a setting conducive to innovation [4]
[9]	Values (growth/development, external confidence, freedom/latitude, attitude to risk, internal confidence)
	Instruments (clear objectives, company infrastructure, external perspective, team constitution)
[32]	Freedom/tolerance, risk orientation, growth/development, internal and external confidence, external perspective, clear objectives, teamwork infrastructure
[33]	Teamwork and knowledge exchange, delegation and recognition, R&D (obstacles), risk-taking, client orientation, social network structure
[27]	Orientation toward technological innovation and knowledge, willingness to take risks, and market orientation
[24]	Values, behaviors, clime, resources, processes, and perception of success
[34]	Market orientation, organizational learning, openness to new solutions, technology, markets, risk-taking, and tolerance of failure
[12]	Knowledge exchange and open communication, learning and social development, networks and external cooperation, allocation of free time, tolerance for errors, reward and incentive systems, management of differences, teamwork
[10]	Autonomy/freedom, cannibalism, proactivity, risk assumption

Table 1. The components of innovative culture, according to various authors.

innovative culture, which have been used by certain researchers, are summarized. Below, the models proposed by certain authors are analyzed in greater detail.

Martins and Terblanche [22], supported by the organizational culture model developed by Martins [35, 36], create a proposal to explain the specific determinants of cultures which promote innovation and creativity in organizations. These authors consider six determinants:

- *Strategy*, emphasized by individual understanding and appropriation of the mission and vision, as well as goals and objectives.
- *Structure* reflects organizational values. Thus, the flexibility, freedom, collaborative work, decision-making speed, empowerment, and teamwork that are reflected in the structure are facilitators of innovation.
- *Support mechanisms*, such as rewarded behavior, use of information technology in processes, and human management practices can also reinforce innovation and creativity.
- *Behaviors that promote innovation* include error management, encouragement of new idea generation, fair idea evaluation, support for curiosity, risk-taking, experimentation, reduced control, encouragement of competition, a positive attitude toward change, tolerance and constructive conflict management, and constructive confrontation.
- Lastly, *communication* is open, transparent, and based on trust, which promotes the idea that disagreement is acceptable, which also influences innovation.

McLaughlin [9], based on Greenwood and Hinings' (1993) concept of organizational archetypes and on Schein's (1984) organizational culture model, proposes certain characteristics to consider, in order to create a radical innovation culture model. These characteristics are procedures, structure, people, organizational aspects, focus, and management. Each one of these is analyzed continuously, from incremental innovation to radical innovation.

Another model considered was that of Büschgens et al. [11], in which it is concluded that Quinn and Rohrbaugh's [37] Competing Values Framework constitutes a model appropriate for the comprehension of the culture-innovation relationship. They consider three dimensions such as flexibility versus control, external versus internal orientation, and organizational means and ends, which, in accordance with their conclusions, synthesize the multiple variables which have been used for the study of innovative culture.

Lastly, Rao and Weintraub [24] propose six innovative culture components. *Values*, which determine organizational priorities and decisions; *behaviors*, which are the way in which employees act when faced with innovation; *climate*, which challenges one to take risks in safe environments and promotes learning and independent thought; *resources*, which include people, systems, and projects; *processes*, which are considered to be the route to innovation development; and, finally, the perception of *success* on external, business, and personal levels.

In conclusion, the models presented have focused on cultural traits [9] or on traits and their determinants [11]. The present proposal precisely aims to remedy this limitation by proposing a model which joins innovative culture determinants, innovative cultural traits, management

competencies, and the organizational capabilities which adjust cultural traits and, as a result, behavior roles for innovation. This innovative culture finally leads to innovation results.

3. Methodology

A descriptive literature review was carried out and later contrasted with the results of the authors' consulting activities. In accordance with Marins and Terblanche [22], the management science literature has been used to describe the organizational culture, creativity, and innovation present in organizations.

The steps used for the construction of the innovative culture model are the following:

(1) The theoretical and empirical literature was reviewed, in regard to determinants of culture.

(2) The literature on cultural determinants that favor innovation was reviewed.

(3) The literature on cultural factors which influence the innovative behavior of employees was reviewed.

(4) The innovative culture models proposed in the literature were analyzed.

(5) The culture for innovation categories which had emerged in the authors' consulting work was analyzed.

(6) The literature review performed in steps 1–3 was contrasted with the models proposed in the literature (step 4) and with the emerging categories (step 5).

(7) Based on the comparison, the need for adjustment between cultural traits and two organizational setting elements, management competencies and organizational abilities, was established.

(8) Innovative culture was modeled on three levels of analysis: determinants of culture, cultural traits adjusted to organizational abilities and management competencies, and behavioral roles.

(9) The dimensions of each one of the analysis level categories were identified.

(10) Each one of the categories was described, in function of its pertinence or relationship to innovative culture.

4. Proposed model for innovative culture

The model proposed here is a holistic model which permits an understanding of those elements which interact in an innovative culture from a broader scope. The elements which compose the said model are separated into five categories and four levels.

On the first level is the *determinants of culture*. These factors determine or generate a certain type of culture. For effects of an innovative culture, both the literature review and author experience in organizational processes lead to the proposal of five factors: strategy, structure, leadership, metrics, and environmental.

On the second level is the cultural essence, or *cultural traits*. This category identifies the content of the culture. On this same level, two additional categories are included, in which, although they are not determinants of culture as such, they do affect them in terms of adjustment: *management competencies* and *organizational capabilities*. In other words, for these competencies and capabilities to take root in the organizational essence, certain specific cultural traits must be developed.

It is considered vital to develop the following seven managing organizational competencies for the innovative culture model: communication, teamwork, tolerance for error, conflict management, decision-making, simplicity and agility, and prioritization. Seven organizational capabilities must also be cultivated: ambidexterity, customer and market orientation, speed, relationships, execution, adaptability, and entrepreneurial orientation. Consequently, there are nine cultural traits of innovation: freedom, risk-taking, commitment and trust, mental flexibility, confrontation, acceptance of diversity, curiosity, association, and respect.

On the third level, and as an effect of the existence of certain innovative cultural traits, the *behavioral roles*, or innovative behavior, this category is found in the organization which identifies with the three innovation phases: idea generation (inventors), idea promotion (champions), and development (implementers).

Lastly, the *results* of innovative culture are presented. These can be in the form of continuous or disruptive, technological (product or process), organizational, or marketing innovations. **Figure 1** presents these components.

A number of the model's characteristics should be emphasized:

(1) The causality and adjustment relationships both between and within the different levels

(2) The difference between individual and organizational perspectives

(3) Its undertaking of both the individual and the organization, which causes one to value the difference between the person and the organization

(4) Comprehension improvement of the different elements present in an innovative culture—determinants of culture, cultural traits, management competencies, organizational capabilities, and behavioral roles—inasmuch as it delimits them and defines its connotation, depending on the model category to which they belong within the model

This is the case, for example, of risk-taking. The literature makes reference to risk-taking, risk assumption, willingness to risk, risk orientation, and error tolerance, as a fundamental element of innovative culture. In the model proposed here, this variable is delimited and differentiated. It includes risk-taking as a cultural trait of the individual, tolerance for error as a management behavior which relates to reasonable acceptance of error, and risk orientation as

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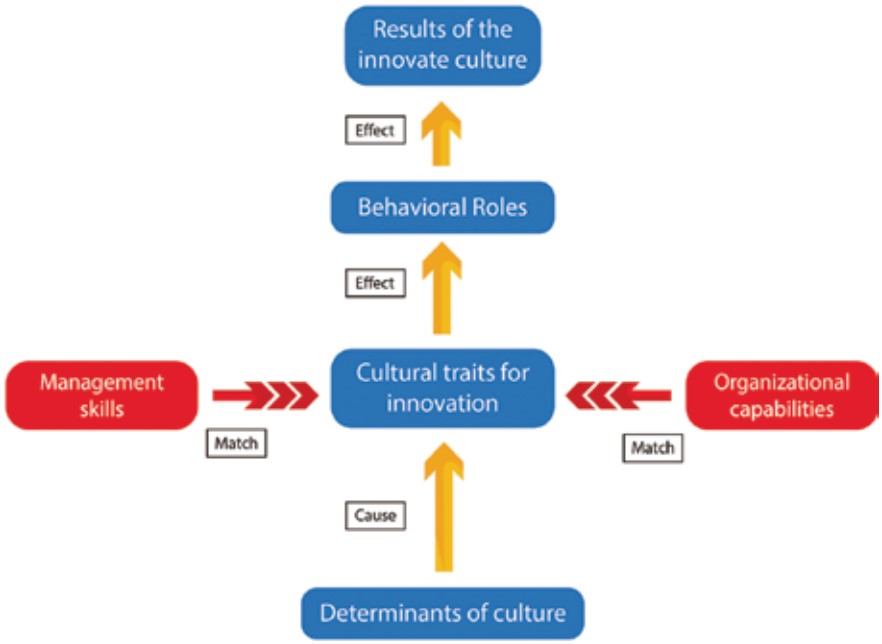

Figure 1. Model of culture for innovation.

an organizational capability which indicates top management's inclination to take business-related risks.

4.1. Determinants of culture

The possibility and convenience of organizational culture intervention have been debated since the seminal work of Smircich [13]. Some authors consider culture to be "something" that an organization IS, which thus cannot be intentionally modified [38], while others believe that culture is something that an organization HAS, which therefore can be modified through organizational management [15, 18, 39].

In the present investigation, the latter position is assumed, which makes the formulation of a desirable innovative culture model, as well as organizational action to achieve this, viable. Various authors [22, 40] agree in the existence of five determining factors of innovative culture: strategy, structure, leadership, metrics, and environmental.

Strategy, considered to be the cornerstone of organizational design, is based on the mission, vision, and short- and long-term objectives [41]. Strategy, through the formulation of goals and objectives, indirectly reflects organizational priorities and values and, as such, inspires its members.

Uncovering the meaning of the goals and objectives and achieving employee understanding of the mission and vision lend a special value to the promotion of creativity and innovation in organizational members [22].

Structure is one of the determinants of culture which is recognized in the specialized literature [22, 40, 41]. In the present model, the proposals of Damanpour [42] and Damanpour and Gopalakrishnan [43], who consider structural elements to be associated with innovation via two constructs, organizational complexity (specialization, functional differentiation, and professionalism) and bureaucratic control (centralization, formalization, and vertical differentiation) are used.

Organizational complexity is reflected in the quantity and diversity of specializations found therein, and the degree of professionalization of an organization's plant personnel makes innovation more probable, as a wide base of knowledge, together with self-confidence and the possibility to exchange ideas, motivates changes in the status quo and the degree of division into units—functional differentiation; frequently, it incites technological development and system improvement [43].

Once decentralization disperses the autonomy to make decisions, it favors creativity, communication, agility in decisions and, generally, the exploration of new knowledge and innovation [42, 44, 45]. While low formalization levels reduce the emphasis on rules and procedures, it allows for the perception of problems and circumstances from other perspectives, motivating the search for new solutions [46, 47]. Little vertical differentiation, or minimal hierarchical levels, facilitates communication and interaction.

Leadership is the ability to promote the innovation and creativity found among the highest-level competencies required of leaders [48]. Evidence shows that the three determinant leadership factors for innovation are organizational stimulus, challenging work, and work group support [49].

Two types of leadership best respond to the three abovementioned determinants: transformational leadership [50], which is based on four components (idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration), and supportive leadership, which focuses on the satisfaction of employee needs and preferences, positive attitude development, and the promotion of trust in and of itself [30].

Metrics and rewards, in organizations, metrics and rewards serve the function of aligning individual behavior and performance with organizational objectives. Thus, employees perceive that the evaluation system (scorecard) and rewards communicate the company values more clearly than any written declaration [41]. In accordance with Nacinovic et al. [51], the creation of a corporate culture that promotes innovation begins with compensation systems, because the desired behaviors are rewarded and, as such, employees are motivated to repeat the said behaviors. A periodic employee evaluation system can be a crucial tool for employee motivation to change and adopt innovative behaviors, as this includes creativity and innovation criteria and values innovative practices [52].

The *environment* constitutes a determinant of culture, in that the most dynamic environment, as compared to the most stable environment, demands different cultural feature emphases. More dynamic environments are characterized by market and technological uncertainty and competitive intensity [53], which means that competitor product design changes, consumer demand for new products, the technology which affects how products are used or manufactured, market structure changes, and the degree of competition are unpredictable [54, 55].

Companies which form part of a market with these idiosyncrasies should develop abilities which permit them to be continuously competitive. Products have short life cycles and become rapidly obsolete, which obliges companies to be highly innovative in order to continue at the speed of change. Souder and Song [56] found that, in conditions of great market uncertainty, companies should highlight their technical superiority and revolutionary designs.

4.2. Cultural traits for innovation

Different investigations recommend studying culture from the point of view of content, which includes the basic characteristics valued by the organization or its operating values [57]. Cameron and Ettington's [58] study summarized by Cameron and Quinn [59] revealed the importance of cultural content, or cultural traits, as they found that organizational results were more closely associated with cultural traits than with congruency or cultural strength.

Regarding cultural traits which should be present in an innovative culture, the review of theoretical literature and results of the authors' empirical studies [1, 40, 53, 40–69] indicate a consensus on the relevance of nine innovative culture traits: freedom, risk-taking, commitment and trust, mental flexibility, confrontation, acceptance of diversity, curiosity, association, and respect.

Freedom, which manifests itself as autonomy, empowerment, and participation in decision-making, is one of the most common elements associated with an innovative culture. An atmosphere of freedom and autonomy increases the employees' intrinsic motivation, considered as a key factor in promoting creativity in an organization [1].

Risk-taking is generally associated with innovative personalities. These individuals have a high tolerance for ambiguity, wish to be challenged, and accept the risks of facing difficult challenges. They are patient and willing to persevere in order to resolve challenges, although they may be difficult [70].

Commitment, understood as the degree to which individuals feel united with or tied to their organization or its parts [71], and *trust*, understood as the degree of emotional security that employees feel in their work relationships [72], are considered to be fundamental for the innovation process. In accordance with Amabile [73, 74] and Jafri [75], employees are only motivated to involve themselves in innovative activities if they are strongly identified with the organization. McLaughlin et al. [9] indicate that, in innovation processes, trusting teams to conduct their development projects, experimentation, collection activities, and idea selection, without interference from management, is fundamental.

Mental flexibility refers to openness and the ability to respond to new ideas, as well as a flexible approach to problem solving [6], which derives from an appreciation of novelty, a pursuit of variety, receptiveness to new ideas, and tolerance for the ambiguity associated with creativity and innovation [76, 77].

Confrontation is the ability to address situations without intimidating others or becoming intimidated. In this sense, beyond simply addressing a situation, one must have the ability to find similarities and differences between two or more positions, make them explicit, and

seek agreement. When there is a conflict between the different ideas, perceptions, and ways in which one may process and evaluate information, the conflict should be managed constructively, so as to promote creativity and innovation [22, 78].

Acceptance of diversity concerns the ability to interact with different people (from varying hierarchical levels, stages of knowledge, external areas, and interdisciplinary areas). Work teams characterized by diversity, interdisciplinarity, the talent of its members, and the emergence of challenging ideas are considered to promote creativity and innovation [63].

Curiosity references the ability to perceive things in observed reality that others do not see. One pays special attention to sources of new opportunities. In order to obtain results in innovation, people must have innate curiosity, be open to experimentation [70], and have a healthy dose of alertness [79]. It merits mention that this feature joins three elements of the so-called innovator DNA: ask, observe, and experiment [80].

Association is the ability to connect successfully with that which is apparently disconnected, which requires the ability to transfer potential from one place to another [40]. Association is like a mental muscle which can grow stronger by using the other abilities that it discovers, as innovators practice the association, they build their ability to generate ideas that can be recombined in new ways [80]

Respect is seeing a person's value, recognizing their expertise and knowledge, and considering their human dignity. While this is a value more than a cultural trait as such, and the specialized literature has rarely noted it as a determining factor for innovation [81], our empirical investigative findings indicate that, in this context, respect is a nonnegotiable condition for the generation of trust and commitment.

4.3. Managing organization competencies

The knowledge, beliefs, behavior, and attitudes of management at an organization do not solely exist as an aggregate of the individual characteristics of the members of the said team. They are also, essentially, the result of policies, everyday practices, intentional declarations, and reward systems which the organization uses on a daily basis.

In the present proposal, managing organization competencies have been termed, "the decisions that upper-level management make, which impact the total operation of the organizations they lead, and which maintain a close connection to the knowledge and beliefs cultivated" [82]. According to Barlett and Ghoshal [83], owing to the current global conditions and new organizational demands, business managers have had to exchange their central controlling role for one of employee development, such that employees become empowered and autonomous, fundamental conditions for innovation.

The review of innovative culture literature enabled the selection of seven management competencies that are closely associated with innovation and creativity: communication, teamwork, tolerance for error, conflict management, decision-making, simplicity and agility, and prioritization.

Effective communication is the most widely recognized management competency in previous innovative culture investigations. In order for communication to stimulate innovation and

creativity, it must be open and transparent; this promotes trust and transmits the idea that disagreement is acceptable within the organization [22].

It must facilitate the free exchange of ideas, promoting horizontal communication between individuals, as well as between teams and departments, as this removes bureaucratic procedures [84, 85]. However, additionally, it should share lessons learned from both success and failure, tell stories which inspire, or warn of possible failings [48].

Once the sensation of emotional security has been created, an employee may feel driven toward divergent thinking and discover new and creative possibilities, without fear of punishment [22]. This is achieved with open and unrestricted communication.

Teamwork is a critical competency used to both stimulate and support innovation [12], provided that empathy and trust are built, and the synergetic effect of participative and collective work is understood.

Multifunctional teams (R&D, design, engineering, sales) are more effective if they are additionally able to exchange ways of thinking and expertise [48] with an open mind, so as to work with a certain degree of uncertainty and conflict [9]. All teams must have the support of a leader and appropriate resource allocation.

According to Leifer et al. [86], team members who work on radical innovation processes should combine their technical abilities with curiosity, passion, flexibility, and ability to take risks.

Tolerance for error has to do with accepting a reasonable margin of error especially the one that is committed trying new things that generate learnings [65]. It values the assumption of risk; encourages taking significant, calculated risks within the scope of one's work; and encourages defiance of the status quo, in an effort to produce positive results. It promotes employee experimentation with new ideas and doing things differently, without fear of negative consequences to their self-image, status, or professional career [6]. Successful organizations not only reward success but also tolerate mistakes, in order to create opportunities for discussion and learning from mistakes [22].

When the organization permits a functional level of conflict, and when the management team is capable of *tolerating and constructively managing* conflict, innovative behavior is stimulated in organizations. This implies accepting different styles of thinking among the members of the organization but at the same time encouraging constructive confrontation between them [22].

On the other hand, participative *decision-making*, which involves others and offers freedom and empowerment to perform one's job and choose the procedures to be used abiding by a few minimal, predictable guidelines, is the source of creativity and innovation [22].

The complexity and dynamics of the global environmental demand that decision-making be quick and timely, in addition to being participative and efficient, which is characteristic of innovative organizations [30].

Another important management competency for innovation is *simplicity and agility* in organizational processes. Managers should eliminate the belief that if something is simple and quick,

it cannot be appropriate for a world-class organization. Process perfectionism, sluggishness in decision-making, and excessive action sophistication are the enemies of innovation [40].

One must remember that the time resource is costly, and not unlimited, especially in innovation processes. One must create a sense of urgency and pressure in innovation projects [9].

Recognition and rigorousness are the ways in which achievements are recognized, remunerated, and celebrated, in accordance with the level of rigorousness applied. Care should be taken with contradictions that could weaken these efforts. For example, if the rewards are structured for innovation but are given for the efficient performance of routine operations, it does not matter how alluring the other signals may be, and it is probable that employees will respond with caution and uncertainty [72].

Lastly, the ability to *prioritize* is key for innovation success. This requires the ability to balance the process-result relationship. In other words, the appropriate level of priority must be given to innovative processes, without sacrificing quality conditions. Stringer [87] found that radical innovation was only possible when it was prioritized in company culture and strategy.

This also means that the company must learn to make sacrifices and understand when to abandon projects, strategies, or actions. This is not an easy task, as many times the egos and interests of managers are entangled in these projects [65].

4.4. Organizational capabilities

Organizational capability is the distinctive way in which a company combines resources, policies, routines, and processes to generate organizational results [88]. These are constructed from a continuous learning and as a result of the way in which each company solves its problems on a daily basis.

The social capability construction process requires companies to develop a number of specific cultural traits. This dimension, then, acts as an adjustment to those features generated by determinants of culture.

In a previous study [40], seven indispensable organizational capacities were identified for innovation: ambidexterity, customer and market orientation, speed, relationships, execution, adaptability, and entrepreneurial orientation.

Capacity for ambidexterity: a company is considered ambidextrous when it simultaneously develops exploration and exploitation competencies. Competence exploitation refers to a company's tendency to invest resources, in order to refine and extend its existing product innovation knowledge, skills, and processes, with the goal of increased efficiency and reliability in existing innovation activities. Competence exploration, conversely, refers to a company's tendency to invest resources so as to acquire entirely new knowledge, skills, and processes, aiming to attain flexibility and novelty in product innovation through increased variation and experimentation [89].

March [90] believes that an organization should agree upon a sufficient amount of exploitation, in order to ensure present viability, and simultaneously put sufficient energy into

exploration to ensure future viability. In order to act in this ambiguity, the organization must possess certain features, including mental flexibility, trust, and acceptance of risk [40].

Capacity for client and market orientation: understood as the capability to have one's eye on both the market and its players such as clients, competitors, suppliers, as well as the variables which determine the competitive context on social, political, geographical, technological, and economic levels [40]. This capability is considered to be fundamental, as in many cases, it is the source itself of innovation [91, 92].

If the company is isolated from the market, it will be incapable of discovering or capitalizing on the opportunities which exist beyond its centers of activity or beyond its current technical or operative capacity [40, 93]. A company which compares, analyzes, and responds to competitor movements may generate new solutions and improve the performance of new products [94].

Capacity for speed: this refers to the capability to develop and launch innovative products more quickly than the competition and is considered a key factor for the success of new products. Above all, it is considered a condition to capitalize on the early benefits of innovation [40, 95].

Because competition has intensified, product life cycles have been reduced, and product obsolescence now occurs more quickly. Companies are increasing their efforts to improve the product development cycle, deliver innovative products to the market quickly, and be the first to move in their industries, such that they can create relative advantages in market participation and benefits and a competitive advantage in the long term [96, 97].

Capacity for relationships: this refers to an organization's ability to establish effective relationships between organizational players as well as those external to the organization. In the internal setting, the cross-functional information exchange between the main players in the development process offers multiple benefits: (1) the available knowledge base is broadened, which reduces uncertainty regarding future difficulties and opportunities, (2) product concept alignment with functional and corporate strategies is ensured, and (3) design phases can occur in parallel [40, 98].

Regarding external relationships, Olmos-Peñuela et al. [4] indicate that, given that academic and commercial activities have different objectives—those of the former center on ways to carry out rigorous investigations, and the latter seek commercial achievements—they require different skills and abilities. Although the differences may produce collaborative tension and difficulties, they can also amplify the learning possibilities, which aid to strengthen company innovation culture [4].

Capacity for execution: in the process of innovation development, this is associated with the ability to go from the initiation phase, in which ideas are generated, to an idea application or implementation phase [40]. This implies favoring characteristics like the initiative to mobilize resources, the ability to plan which concerns coordination and execution, and rationale; such decisions made are supported by the use of logical arguments and accurate information [67].

Adaptive capacity is defined as the combination of factors which permit a company to learn and adapt nimbly to a changing environment and even allow for the prediction of the said changes [99]. Thus, the culture which most effects innovation is most highly adaptable [29].

There are two key adaptive capacity components: the first component has to do with management team sensitivity to perceive existing tension between adaptive challenges and the possibility of internal adaptation. The second component has to do with the containing environment or the amount of help, support, and accompaniment available for adaptation [78].

Entrepreneurial orientation's importance for innovation performance improvement has been indicated consistently in the literature. Entrepreneurial values improve the creation of new businesses within the existing company, as well as the renewal or rebirth of existing businesses that have become stagnant or require transformation [62].

Entrepreneurial orientation should be understood as a multidimensional concept that entails organizational actions related to the following dimensions: innovativeness, proactiveness, and risk-taking. Entrepreneurial orientation of a firm is demonstrated by the extent to which the top managers are inclined to take business-related risks (the risk-taking dimension), to favor change and innovation in order to obtain a competitive advantage for their firm (the innovation dimension), and to compete aggressively with other firms (the proactiveness dimension) [100, 101].

4.5. Behavioral roles

Employee's innovative behavior has been defined from different perspectives, but, in general, it is linked to the different stages of the innovation process. From this perspective, innovative behavior is usually understood as individual actions directed toward the generation, introduction, and application of novel benefits on some organizational level [63, 102].

In accordance with Naranjo-Valencia (following Tushman and Nadler, 1986; Scott and Bruce, 1994; Sim et al., 2007; Martins et al., 2008; Wolfe, 1995; Kanter, 1988) [53, 63], each of the stages of innovative behavior corresponds to a behavioral role: in the first stage of the innovation process, the *inventor*, or idea generator role, is fundamental. In other words, this is the role of individuals who recognize a problem and generate new ideas or solutions and those who focus on scientific and technical invention prior to concept development. Thereafter, people are required for the role of product *champions*, who must promote these new ideas and garner support for them, both within and outside of the organization.

In the final stage of the innovation process, the *implementer* role is required. This is the role of those who try to facilitate an innovation's formal development by obtaining resources, organizing innovation execution, and assuring that each task and important activity are completed on time and within the budget.

5. Conclusions

Innovation in organizations is imperative in a global world, with turbulent settings and ever more demanding markets. Innovation requires R&D investment as well as an organizational culture which stimulates and promotes it. The characteristics of a culture that encourages, and does not inhibit or restrict, innovation have been studied by various authors, but the diverse models proposed thereby possess limitations, in which the present investigation has attempted to redress.

The model designed in the present investigation systematically integrates four levels. Firstly, it integrates a group of factors called determinants of culture, owing to their strong impact on the generation of cultural traits. On the second level are the features and behaviors (traits) of an innovative culture which are parallel to two categories that act as adjustment mechanisms, organizational capacities and management competencies.

On the third level are the behavioral roles derived from these cultural traits which define an organization's innovative behavior in its three components, idea generation, promotion, implementation. Lastly, the model registers the results expected from the innovative culture model, in terms of products and processes for technological innovation, as well as administrative and marketing processes, regardless of whether they are products of continuous improvement or disruptive innovation.

All of these components interact with each other, whether between dimensions and categories or there within, and this dynamic depends upon whether innovation and creativity in an organization are supported or inhibited.

Although the proposed model is derived from previous qualitative and quantitative investigations, including from experience in the authors' organizational consultation, this study's lack of empirical contrasting is proposed as a limitation. As such, it constitutes a source of future applied investigations, so as to establish relationships between dimensions and categories, such as the moderating or mediating effects thereof.

For company decision-makers, the model constitutes an alternative to the performance of culture diagnostics and consequently enables them to formulate plans which close innovative culture idea gaps.

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Chapter 3

The Role of National Cultures in Shaping the Corporate Management Cultures: A Three-Country Theoretical Analysis

Mohammad Ayub Khan and Laurie Smith Law

Additional information is available at the end of the chapter

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Abstract

This chapter explores answers to the question that how national cultures influence the management cultures of organizations. In this case, therefore, differences and similarities among the national cultures of Pakistan, Mexico, and the USA are under investigation in order to analyze the impacts of such differences and similarities on the management cultures of organizations located in these countries. The outcomes of the analysis based on the existing literature suggest that differences in national cultures greatly influence the way organizations are managed in these countries. These findings present cross-cultural management challenges for organizations working in these countries, especially when they want to build trilateral or bilateral business partnerships. This is in addition to the fact that the USA and Mexico are geographically far from Pakistan.

Keywords: corporate culture, cross-cultural management, management style, national culture, Pakistani national culture

1. Introduction

The role of culture in influencing international business management practices and approaches is an undisputed fact [1, 2]. Studies have shown repeatedly that national cultural systems as well as individual cultures greatly affect the corporate cultural system [3, 4] in many ways. For example, national culture influences managerial decision-making, leadership styles, and human resource management practices [5, 6]. Similarly, national cultures affect managerial functions such as communication, motivation, organizational design, people's expectations of

work design, and reward systems [7]. Moreover, organizational polices (e.g., human resource polices) are influenced by various national institutions such as labor laws, educational and vocational training practices, and industrial standards and regulations [8]. In essence, culture organizes values into mental programs and the behavior of people within organizations is an enactment of such programs [9]. Organizations can be the same in such objective dimensions as physical plant, layout, or product, yet very different in the meanings, which the surrounding human cultures read into them [10]. Not only technologies and markets shape organizational culture, but by the cultural preferences of leaders and employees, national culture has a strong impact on people's interpretations, understandings, and assessment of those with whom they work. Cultural values are important for interpersonal trust, teamwork, and the role of women in the workplace, among other issues [11, 12]. Cultural differences play a significant role in the way people conduct their lives and behave on the job. Culture is the interactive aggregate of common characteristics that influence a human group's response to its environment [13]. Cultural differences, if not understood and appreciated well, can lead to failures in business and social life [14]. Several studies, for example, [15] are available on the importance of learning about national cultures and the impact of national cultures on the operations of organizations. However, there are no studies on the issue of organizational cultural differences and similarities between Mexico, Pakistan, and the USA. That being the case, there is a dearth of literature on this subject and this chapter attempts to address this issue. In particular, this chapter intends to answer the following questions:

1. Are the national cultures of Pakistan, Mexico, and the USA same or different?
2. How national cultures influence the management cultures of organizations?
3. Are there differences and similarities between the management cultures of organizations of the three countries under study?
4. What if there are differences and similarities between the management cultures of organizations of Pakistan, Mexico, and the USA?

2. Literature review

In order to answer the questions above, this chapter (1) explains the national culture and its scope, (2) analyzes the cultures of Pakistan, Mexico, and the USA, (3) explains management culture of organizations, and (4) compares and contrasts the management cultures of organizations of Pakistan, Mexico, and the USA. In particular, the literature review focuses on the role of national cultural variables in influencing the management cultures of organizations as shown in **Figure 1**.

2.1. Culture: concept and scope

The role of national cultures in shaping organizational work environment and other social institutions has been studied by several researchers in the field (i.e., [16]). Culture is all that what we share with other members of our nation, region, or group but not with members of other

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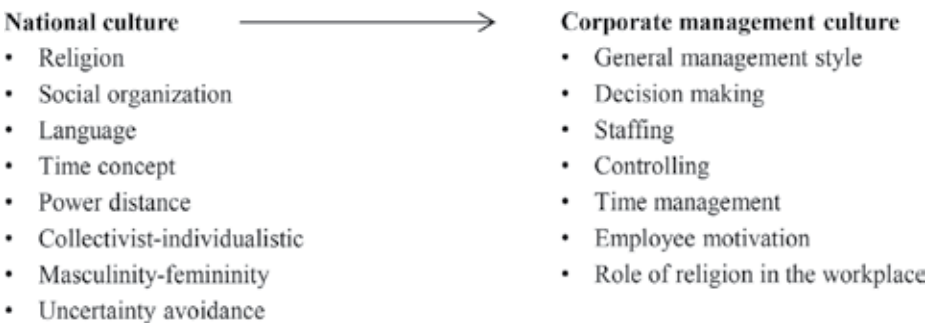

Figure 1. National cultures influence the management cultures of organizations.

nations, regions, or groups [17]. Culture encompasses values, which are shared between people within a particular social setup with specific nationality or country of origin [18]. "Culture is created, acquired, and/or learned, developed, and passed on by a group of people, consciously or unconsciously, to subsequent generations. It includes everything that a group thinks, says, does, and makes—its customs, ideas, mores, habits, traditions, language, and shared systems of attitudes and feelings—that help to create standards for people to coexist [19]." Culture is also considered as an independent environmental variable specific to one specific country [20]. Furthermore, "Culture is the programming of the mind, which distinguishes the members of one human group to another. Being more precise, culture is a pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration [9]." In essence, culture is embedded in everything what we do, what we have, and what we think. Culture is learned through membership in a group and is composed of set of values, assumptions, and beliefs and that influence the attitudes and behaviors of group members [14]. In fact, culture is a set of distinctive spiritual, material, intellectual, and emotional features of society or a social group; it encompasses art and literature, lifestyles, ways of living, value systems, traditions, and beliefs [21].

2.2. Understanding the national cultural system

The national cultural system is made of values, beliefs, and is the collective programming of mind [7]. The national cultural system is also defined as "a set of historically evolved, learned and shared values, attitudes and means. The term nation refers to culture, social, economic and political institutions influence how organizations are managed in different environments [16]." In order to analyze and understand national cultural systems, cultures are classified into different levels: individual; group; organizational; industrial, national, and geographic regions [14]. Cultures are also grouped based on inner elements (i.e., history, beliefs, values, and work view), cultural activities (i.e., roles, art, communication patterns, rules, customs, technology, and material culture), and cultural systems (i.e., religion, economic, law, education, social organization, family, health, and politics) [22–24]. Over the past several years, different authors (as shown in **Table 1**) have used different dimensions to analyze and classify national cultures systems.

Since in this chapter, some of the dimensions of national culture proposed by [9, 25] are being studied; therefore, the five dimensions of national cultures of [25] are briefly explained in the following:

1. Power distance: the degree of equality, or inequality between people in a society.
2. Individualism vs. collectivism: the degree to which people of a society understand themselves as individuals, as apart from their group.
3. Masculinity vs. femininity: the degree the society reinforces or not the traditional masculine work role model.
4. Uncertainty avoidance: the degree to which people in a society feel uncomfortable in unexpected, surprising, and unknown situations.
5. Long-term vs. short-term orientation: the degree people attach importance to a future-oriented way of thinking rather than to a short-term oriented one.

Most of the studies undertaken on differences in national cultures and the impact of such differences on organizations find national cultures having profound effects on leadership style, communication, motivation, organizational design, people expectations of work design, and rewards in organizations [7]. Though national and organizational cultures are different in that that national cultural differences reside mostly in values and less in practices, whereas organizational cultural differences reside in practices, less in value [13, 9, 26]; however, they are interdependent and by that it means that national cultures influence directly or indirectly organizational cultures and vice versa. The national cultural identity is considered fundamental for individual characteristics such as self-esteem, functional effectiveness, mental health, and quality of life [21] and thus having direct effects on the managerial styles within organizations.

2.3. The national cultural variables

The national cultural system is composed of diverse variables including language, religion, rules and regulations, political system, social organization, history, economy, technology, education, values, attitudes, customs, traditions, concept of time, music, art, and architecture, for

Authors/years	National cultural dimensions
Kluckhohn and Strodtbeck (1961)	Human nature orientation; man-nature orientation; time orientation; activity orientation; relational.
Parsons and Shills (1962)	Affectivity-affective neutrality; self-orientation-collectivity-orientation; universalism-particularism; ascription-achievement; specificity-diffuseness.
Hofstede (1980, 2001)	Power distance; individualism/collectivism; masculinity/femininity; uncertainty avoidance; long term/short term.
Schwartz (1992, 1999)	Conservatism vs. autonomy; hierarchy vs. egalitarianism; mastery vs. harmony.
Trompenaars and Hampden-Turner (1997)	Universalism vs. particularism; individualism vs. communitarianism; specific vs. diffuse; neutral vs. emotional; achievement vs. ascription; sequential time vs. synchronous time; internal direction vs. outer direction.
House et al. (2004)	Power distance; uncertainty avoidance; assertiveness; institutional collectivism; in-group collectivism; future orientation; performance orientation humane orientation; gender egalitarianism.

Table 1. Classification of national cultures.

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instance. Notwithstanding, in this chapter, a few of these variables are being studied in order to compare and contrast the national cultural systems of the three countries under study.

2.3.1. Religion

Religion plays the role of a foundation stone in every aspect of human life [27]. With regard to the role of religion in one's professional life, Weber [28] suggests that, for example, the Protestants work ethic promotes hard working, saving money, and managing time well and therefore, leisure activities (going to bar, nightclubs, gambling) are not well seen [29]. Furthermore, working is seen as a way to receive God's blessing and mercy and therefore, working is viewed as the most important obligation in one's life [28]. Work is believed to contribute to the overall well-being of the individual and society around [30]. The influence of religion is also found in building positive attitude toward work, organizational commitment, and job quality. Protestantism emphasizes hard work, individual achievement, and a sense that people can control their environment [30]. Similarly, the religion of Islam places great importance on the role of work and working in one's life. Time should not be wasted and planning is important to achieve good results. Islamic messages and guidance vehemently support contributing to the development of the world. In Islam, work is given special importance to the extent that it is considered as an act of worship itself [31, 32]. Therefore, Islam lays a lot of emphasis on work and the need for man to work in earning his livelihood so as to be independent, self-sufficient, and in order to uphold his dignity among his peers and in his community/society. Employees have to fulfill their jobs for the societal obligation with the purpose to seek pleasure of Allah. Muslim must perform his duty as a religious obligation, and motivational reward is not only linked with earthly reward but also awarded in the hereafter [32]. Employees must adhere to diligence and efficiency as well as fairness in preserving public interest. Religion is a system of common beliefs or attitudes concerning a being or a system of thought that people consider sacred, divine, or the highest truth. Religion also incorporates the moral codes, values, institutions, traditions, and rituals associated with this system. Religion influences culture and therefore business and consumer behavior, in various ways [32].

2.3.2. Social organization

Social organization is another key element of nation cultural system. Different cultures have different social systems or system to organize the society around family systems, neighborhood, ethnic groupings, and tribal systems for instances [33]. The social organization is also about how these variables (of social organizations within each cultural system) are defined and interpreted. For example, family may include your immediate or direct relatives including your wife/husband and children (which is also called a nuclear family system) in one culture; and your wife/husband, children, parents, uncles, cousins, etc., are in other cultures (which is considered extended or traditional family system). Whether nuclear or extended, the family is a social group characterized by common residence, economic cooperation, and reproduction [33]. Social organizations as a national cultural component also include aspects of ethnicities, classification based on economics, family trees, distribution of roles and responsibilities among gender (male and female), and social hierarchies so and so forth [33].

2.3.3. Language

The role of language as a national cultural component is undebatable in the field of international business and management. It is not only important for business or management communication but also and most importantly, it shows the insight of a culture. Learning the language of the host country helps understanding the cultural sensitivities of the local employees and managers [34]. Language has both verbal (words) and nonverbal (facial expressions and gestures) characteristics. Languages are also classified as high and low context [34]. The low-context language-speakers focus on the words, message, and the content when communicating, whereas the high-context language-speakers focus more on the context, surroundings, and how the words are communicated. The low-context language-speakers tend to depend on the clarity of the message, written documents, preciseness, and information-rich document. As a result, speakers must rely more heavily on providing greater message clarity, as well as other guarantees like written documents and information-rich advertising. High-context communicators generally look for long-term personal relationships, mutual trust, and personal prestige [35]. In high-context communication, the message cannot be understood without a great deal of background information. Low-context communication spells out more of the information explicitly in the message [34]. In low-context cultures, context is less important; most information is explicitly spelled out [35]. The role of language is fundamental for conversations, establishing and managing interpersonal affairs, managing organizations beyond the national borders, and leading multinational agreements and relationships [36]. Our histories, traditions, knowledge are preserved and disseminated through language. Language and linguistic structures are culture-centered which means while the culture supplies the meaning and meaning-making mechanisms, language in itself provides the symbols to support the delivery of such meanings to the intended audience or target [36]. In nutshell, language reflects the culture in that it presents ideas, thoughts, and artifacts and is a channel of sharing information, knowledge, values, experiences, and thoughts [36].

2.3.4. Time concept

This element of the national cultural system describes that how individuals in a particular cultural group approach to manage time. Time concept includes feeling, perception, and use of time. Either the nature or individuals control time. Time is money and thus can be wasted and invested. In cultures where time is perceived as controllable factor, people tend to be punctual, agenda-oriented, and monochromic. Business practices such as schedules, planning, appointments for meetings, and taking responsibility for late delivery of products and services are parts and parcels of the corporate management culture. In cultures where time is considered as something to do with the nature or environment, people tend to be less punctual and polychromic [37]. In essence, the way people perceive the time factor will influence the way individuals control their time. In monochromic time-oriented cultures, individual employees establish goals and plan accordingly in order to increase job performance and job satisfaction. Time management influences every aspect of an individual's life including work life, family life, social and private life [38].

2.3.5. High vs. low power distance

This national cultural dimension measures the degree of acceptance or rejection of the unequal distribution of power and influence in organizations. The power and influence

include distribution of knowledge, wealth, resource, information, authority, and the relationship between the boss and subordinates. In low-power distance societies, individuals feel equal to their peers (especially to superiors or subordinates). In high-power distance societies, individuals feel unequal to their peers (superiors or subordinates) [13].

2.3.6. Individualism vs. collectivism

This cultural dimension measures the degree of how much individuals in a particular society care about themselves vs. care about others. Individualistic societies tend to be more self-oriented where individual performance leads to individual outcomes. Individual independency and interests are protected and promoted. In contrast, collectivist cultures are group-oriented where interdependency and group interests override individual interests. Individuals are accountable to social norms and individual performance is measured by social standards [17].

2.3.7. Masculinity vs. femininity

This dimension measures the degree of how much (high/low) individuals in a particular culture are motivated by competition, personal achievement, and success. Individuals in masculine societies tend to prefer individual competition, achievement, and success, whereas individuals in feminine societies tend to care for others and want quality life for all [13].

2.3.8. High vs. low uncertainty avoidance

This dimension of national culture measures the degree of how much individuals in a particular society risk when making decisions or taking action in an uncertain situation. Individuals from societies where uncertainty avoidance is high are considered not adventurous and risk-takers in decision-making. Such individuals may need more time, information, planning, and support before they make any decisions about the future. Contrastingly, individuals from societies where uncertainty avoidance is low tend to be high-risk-takers when making decisions about the future [17].

2.4. Pakistani, Mexican, and US national culture

2.4.1. Pakistan national culture

The national culture of Pakistan is described as collectivist, status-conscious, and having a large power distance [39]. The social setup is family-centered and life is built within a group [40]. People keep a strong need for security and disapprove of independence in decision-making and questioning authority [41]. In general, a business culture in Pakistan is based on personal relationship and business is conducted among friends. If the business is negotiated between two Pakistani companies, many interpersonal negotiations have already been conducted in a social setting before the question enters the boardroom. The eldest, the head of the concern, will make his decision with or without you though he will politely listen to your views [42]. If the business is conducted with a foreign company, a lot of lobbying has to be done already before actually negotiating the issue. Friendship has to be formed and confidence built. The formal meetings are only held for formalize the deal [41]. The British influence on Pakistani culture is believed to have created social class system notably feudal

and civil servants. The elite symbolize money, power, and status. The education system in Pakistan also requires surrendering to authority-personal initiatives, and originality and independence in decision-making are met with disapproval [15]. Pakistani managers tend to make decisions based on rational; they are dependent and try to avoid spontaneous decision-making, which characterizes them as high risk averse and favorites of high power balance between boss and subordinates [43]. Pakistani social infrastructure is built around joint family system [44] and organization cultures reflect bureaucratic structure, authoritarian management, and centralized decision-making styles. Decision relating to employee management such as promotion, pay increase, and training and development are made based on personal likes and dislikes. Managers and owners tend to focus on their own profit while ignoring the interests or welfare of the employees [44]. Pakistan is considered a collectivistic society where long-term commitment and loyalty are critically important as a member of society or an organization. When it comes to the issue of whether the Pakistani society is masculine or feminine, the general understanding supports the notion that Pakistani culture tends to be masculine than feminine. The Pakistani culture promotes uncertainty avoidance where managers in corporations follow rigid rules and regulations, planning, punctuality, and security [45, 46].

2.4.2. Mexican national culture

The Mexican national culture is characterized as paternalistic culture in which high power distance and group orientation are accepted and practiced. Mexican managers make most of the strategic decisions leaving little or no control for operational staff to make decisions [47]. Managers resolve conflicts, establish goals, and measure the outcomes using established standards and criteria but without involving employees or subordinates in the lower hierarchy [7]. Mexican companies are managed like family units in which the owners and managers (mostly managers are the owners) act like father figures for the general employees in expectation to gain respect and loyalty [7]. Studies (e.g., [48]) find that Mexicans tend to be high class-sensitive, fatalistic minded, and collectivist at the same time. Mexicans consider both religious values (majority are Roman Catholics) and spending good life essential in one's life. Mexicans work to live, spend time with friends, like hobbies and sports. Macho attitudes are prominently demonstrated by Mexican men [49]. As mentioned earlier, Mexican national culture is generally group-oriented. Individual members of the group, therefore, are expected to maintain group harmony and conform to social norms of the group. Strong interpersonal relationships and building trust are critically important for future business relationships. While doing business in Mexico, friendliness, goodwill, and respect are keys for the success in the long run. Mexicans do business with individuals not with companies, so the process of establishing business or working relationships may take time [50]. Making and maintaining friends whether social or professional are helpful in solving both social and business conflicts in Mexico. Family status, connections, and education are respected [51]. Other key personal features such as sincerity, integrity, charisma, and sociability are highly valuable. Communication is polite and diplomatic since confrontational and conflictive approaches to resolve differences are not functional [52]. Overall, according to Hofstede's dimensions of national cultures [53], Mexico is considered a hierarchical society where power, class, and status are recognized and valued. A collectivistic society is promoting long-term commitment,

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loyalty, social relationships, and group affiliations. A masculine society is where managers are expected to make decisions, to be decisive, and assertive. In addition, a high uncertainty avoiding culture where risks are not taken and managers would not make risky and adventurous decisions. Decisions require time, information, consultation, and approval from the competent authorizes in the hierarchy.

2.4.3. The US national culture

The American national culture is recognized as being individualistic, freedom-oriented, and competitive [54]. Americans value equality, informality, and individual privacy. American people are generally hardworking, disciplined, action-, and achievement-oriented. They are also direct, assertive, and largely materialistic [54]. Personal progress, egalitarianism, and self-control are other values of American people [55] both in social and professional life. Individual responsibility, decisiveness, strong work ethic, and forceful determination to have success in life are fundamentals for the American people [56]. American people are generally future-oriented and tend to work hard to make future better and successful. Consumerism and materialism are accepted. The nature can be controlled and should be controlled by planning and controlling resources in order to serve better the humankind [57]. Time is key factor in success since time is money, time can be wasted and invested. Efficiency, skills, and logical approach to solving business problems are common characteristics or American business managers [57]. American people are highly task-oriented and profit-focused. Workers are viewed as hardworking individuals. They can make their own decisions and control their own lives and environment [57]. Americans accept changes and risks for the betterment of the self and the society at large. American culture is also viewed by external (non-American) observers as being selfish, greedy [57], aggressive, and arrogant. In general, in accordance with the Hofstede's dimensions of national cultures, Americans are found to be low in the power distance index; high individualistic; high in masculinity and low uncertainty avoiding.

2.5. Comparative analysis of the three national cultures

Table 2 provides an interesting comparison of the three countries based on the variables collected from the existing literatures. In Mexico, more than 90% of the population is Catholics and people practice religious functions with respect and punctuality. Similarly, in Pakistan where 97% of the population is Muslim and people are very religious. Both Catholic and Islam provide its believers with certainty (avoidance of uncertainty is high) and masculine values tend to prevail in Catholic and Islamic countries [13]. Social organization is centered in family where father and mother play important roles. Both Spanish (national language of Mexico) and Urdu (national language of Pakistan) are high-context languages, which means in both of these languages, indirectness, implicitness, and nonverbal language are high. When dealing with business contracts, Mexicans and Pakistanis view the business relationship as a long-term deal and tend to trust the person not the company. In terms of approach to time management such as deadlines, schedules, planning, and time controlling, both cultures have relaxed sense of time. Not because time is not important but because time controlling is not within the scope and authority of the man in these two cultures. Both Mexican and Pakistan societies

Variables	Mexico	Pakistan	USA
Religion	Catholics	Muslims	Protestants
Social organization	Extended family centered	Extended family centered	Nuclear family centered
Language	Mid-high context	High context	Low
Time concept	Relative	Relative	Absolute
High/low power distance	High power distance	High power distance	Low power distance
Individualism vs. collectivism	Collectivist	Collectivist	Individualistic
Masculinity vs. femininity	Masculine	Masculine	Masculine
Uncertain avoidance	High uncertainty avoidance	High uncertainty avoidance	Low uncertainty avoidance

Table 2. National cultures: Mexico, Pakistan, and the USA.

are collectivist societies where individuals belong to family, neighborhood, and the society at large [11]. Pakistani culture is considered a traditionalist culture where values reflect family, class, the past, and revealed truth. Leadership is autocratic, male head of family as model. Women's status is generally low and time urgency is unimportant [58]. In Mexican cultural system, one can find the same features of family, class, male head of the family (Machismo), and time urgency is unimportant. Traditional cultures are usually strong in uncertainty avoidance, high in power distance, and tend to associative thinking [58]. Similarly, both Mexican and Pakistani cultures are grouped as particularistic where good relations with family and friends are vital. Importance of interpersonal relationship is high, institutionalized obligations are to family and friends, main basis for rewarding employees is employee's personal situations and purpose of pay raise is to stimulate better performance. Rules and standards should be adjusted depending on the subordinate or situation [58]. In Mexican organizations as in Pakistan organizations, workers view conformity, respect, and personal loyalty to supervisors are important and should be rewarded. Honoring status is part of Mexican business rituals. Lewis [59] group India, Pakistan, Arab countries, and Latin American countries as multiactive which means impatient, emotional, unpunctual, people-oriented, talkative, seeks favors, and delegates to relations. Both Mexico and Pakistan are found to be in the group of high power index cultures. Such cultures accept inequality as the cultural norm and these cultures therefore are vertical. People respect hierarchy, authority, and formalized rituals [23].

Interestingly, Mexican and Pakistani national cultures are closely related to each other based on most of the cultural variables used in this study. However, the American culture is different from both of these countries except in the variable of masculinity vs. femininity. All three countries reflect masculine tendencies in their respective societies showing the impacts of globalization and corporate cultures on societies. American society tends to promote and appreciate individualism, high time orientation, equality, and risk-taking attitude. However, Christianity (various branches) has strong roots in America and so does the Protestant work ethics, American tends to separate religious beliefs from professional life and thus religious beliefs are very personal matters. Families in America are organized around nuclear family

setup where parents and children are the primary members of the family. The American language English is a low-context language when comparing with Urdu and Spanish [54, 60].

2.6. Corporate management culture

Management is about getting things done through other people. Managers are responsible for making decisions, allocating resources, and directing the activities of others to attain goals. Corporations are business organizations, and management involves a process, culture, and people [17]. Though certain management methods and practices are replicable abroad, however, they should be adjusted considering specific cultural needs and peculiarities [61]. Therefore, business corporations entering into alliances with organizations beyond their national boarders need to understand the differences found in management practices across national cultures [17]. Various organizational variables such as values, norms, ethical codes, rules, and regulations, for example, influence one way or the other corporate management styles. And such variables vary across national cultures and they do influence managerial functions, roles, and responsibilities [62]. Management style is about how managers behave and function when dealing with employees inside the company. Management style is the set of principles by which managers capitalize on the abilities of their employees [63]. Some management cultures accept and promote a work culture where managers are responsible for organizing, planning, coordinating, decision-making, and they have the authority and control over organizational resources. Whereas, some other cultures emphasize upon the notion that employees should be treated well, managers should delegate authority and resources to their employees, and managers are coaches and mentors [64]. In summary, the organizational culture is composed of variables such as management style, decision-making process, staffing procedures, interpersonal trust and confidence, commitment, control, importance of relationship, teamwork, and role of nature [65]. Organizational culture also includes the power structure, organizational structure, functional policies, and management systems [65]. Organization culture is about the values, rules, practices, and norms through which organizations manage their business operations [66]. A strong and dynamic organizational cultural system is fundamental for the organizational competitive advantage, if such cultural system is learned, developed, and shared across the global organizational system [29].

Given the fact that corporate management culture involves a set of diverse and complex variables, a few but key variables of corporate management cultures are briefly elaborated in the following section.

2.6.1. General management style

Management style can be classified in two broader categories. Mangers can be autocratic and democratic. Autocratic managers do not delegate authority to their subordinates. They will make most of the strategic and operational decisions. They will also control assets and resources within their jurisdiction. On the other hand, democratic managers will actually delegate authority to their subordinates in terms of decision-making and resource management [64].

2.6.2. Decision-making process

Decision of strategic and operational nature can be centralized vs. decentralized. In centralized decision-making setup, managers in charge will make all or most of the decisions and transfer those decisions down to the lower staff in the chain of command for implementation. Lower staff in the hierarchy will not have, therefore, options of giving opinion and questioning the decisions already made by the person in-charge of the department or company. In a decentralized decision-making system, decision-making process will involve individual concerns and participation. Virtually, everybody is consulted before the final decision is made. Of course, the final decision should be approved by the person in-charge. In contrast to the centralized decision-making system, in decentralized decision-making setup, decisions of operational nature can be made by the lower staff in the event of necessity and urgency [64].

2.6.3. Staffing

Staffing means hiring people in organizations. Some organizations in some cultures use criteria for staff selection such as academic preparation, experience, and other specialized skills. These selection criteria are called technical criteria. Contrastingly, in some other cultures, organizations use selection criteria such as affiliation of the person with the company, family, political connection, and age for staffing purposes. These criteria of staffing are considered staffing based on social characteristics [64].

2.6.4. Controlling

The term controlling describes the process of regulating organizational activities so that actual performance conforms to expected organizational standards and goals [67]. Controlling is an ongoing management function requiring managers to set up systems and produce desired behavior to facilitate the achievement of the company's goals. Controlling employee behavior in the workplace could be exercises either by social actions or by technical means. Social actions include appreciating employee performance, showing concern the employee and his/her family, recognizing his/her efforts and developing personal rapport. Technical means of controlling employee behavior involve formal reporting relationship, budgeting, rewards and punishment, objectives achievement evaluation, and regular supervisor. Which of these controlling mechanisms is appropriate and effective in a particular situation is a cultural question [64].

2.6.5. Time concept

Time is a valuable and limited resource to saved, scheduled, and spent with precision. Deadlines and schedules have to be met. Some cultures view time based on religious beliefs and destiny [67]. Cultures, which consider time as an absolute concept, are called monochromic time-oriented cultures, and cultures where time is viewed as a relative concept are considered polychromic time-oriented cultures. Monochronics believe that accomplishments and tasks can be divided into segments and each segment should be performed at a time. Polychronics attempt to do a number of things simultaneously in a nonlinear sequence [22]. Time is increasingly viewed as a factor that organizations must manage. Our conception of time is strongly affected by culture because time is an idea rather an object [10].

2.6.6. Employee motivation

The term motivation refers to an individual's choice of behaviors and the impetus behind those behaviors [67]. Mangers are responsible to set up a situation in which individual desires to carry out certain activities that will lead to the achievement of organizational goal [67]. Existing research works suggest that motivation tools are more likely to be social, interpersonal, and spiritual [8]. Motivation is influenced by the context of an individual's personal work and personal life and that context is greatly influenced by cultural variables, which affect the attitudes and behaviors of individual and groups on the job [67]. Motivation is cultural. In some cultures, workers can be motivated by teamwork, the need for the job, relation with their peers, flexible work hours, and relaxed work standards. In other cultures, people will be motivated by personal goals, division of labor, specific rules, and opportunities for individual advancement [67].

2.6.7. Role of religion in the workplace

Natural environment has been at the center of discussion for researcher as source of human existence. Natural elements such as floods, winds, earthquakes, famine, cold, fire, and so and so forth have surrounded human being from the inception [10]. Societies conduct business with two major orientations of nature: either to control and subdue the nature by imposing will upon it or man is part of the nature and must go along with its laws, directions, and forces [10]. Who controls the nature? Some cultures believe that it is the man with knowledge and resources control the nature. It is just like that, what happens to me is because of my actions. Some other cultures believe that other forces other than man itself such as God control the nature. That is why man has no control over it and therefore, must go along with it [10].

2.7. National and corporate management cultures: a comparative analysis

Several studies [62] undertaken to understand the relationship between corporate management and national cultures find that management practices and national cultures congruency lead to the better organizational performance. Similarly, Hofstede [13] proposed that each culture has a preferred coordination mechanism, implying that workers from each nation deliver a better performance if they use their own preferred management practices. Similarly, Newman and Nollen [68] find that business performance is better when management practices match with the national culture since national differences influence management styles [62]. Management styles are deeply influenced by the social culture in which the organizations operate [69].

2.7.1. General management style

In Mexico, managers are autocratic and paternalistic. Mexicans value status and accept hierarchy. Workers expect respectful recognition of their roles within the hierarchy. Employees hesitate to provide decision-making input or assume decision-making responsibilities and risks [70]. Generally, subordinates do not challenge a decision made by supervisor or superior. Pakistan culture is also autocratic and paternalistic [71]. In contrast, the American culture

is characterized by short-term employment, individual decision-making, individual responsibility rapid evaluation and promotion, explicit, formalized control, specialized career paths, and segmented concern [72].

2.7.2. Decision-making process

In Mexican companies, the authority to make decision lies with the top in the hierarchy. Decisions are centralized and undemocratic. Roles are clearly separated between boss and subordinate. The boss makes decision and the workers should support the decision without making judgment about the decision. Usually, managers will not delegate authority to their employees to make decision of their own. In addition, the authoritarian management style of the Mexican managers tends to discourage upward communication [48]. In Pakistani organizations, since managers are autocratic, decision-making process is controlled and centralized on the top. Decisions are generally made by the high-ups in the rank and transmitted down to the junior levels through hierarchical channel [71]. Rational and dependent decision-making are preferred styles of Pakistani managers [71]. Interesting to note that in both Pakistani and Mexican organizations, decisions even of important and strategic nature can be made orally and disseminated among the staff. On occasions, employees may be encouraged to contribute ideas and suggestions, but they will not be given authority to make decisions. Decision-making is centralized and the final decisions in both countries lie in the hands of the mangers in top positions. The American culture is characterized individual decision-making, individual responsibility, and managers delegate authority and responsibilities [72].

2.7.3. Staffing

In any organization and for any position, in Mexico and Pakistan, while hiring employees, nepotism and favoritism are generally practiced. In hiring, relationship and connection are decisive criteria than technical competences of the candidate. Since both in Mexico and Pakistan, loyalty to superior is important, such staffing custom helps hiring employees who can be trusted [71]. The American culture in which individual productivity and efficiency are the sources of organizational effectiveness, staff practices such as short-term employment, rapid evaluation and promotion, staffing mostly on academic backgrounds, specialization and experience, and specialized career paths [72]. When selecting among job applicants, Mexican employers typically look for a work history that demonstrates ability to work harmoniously with others and to cooperate with authority. They also tend to seek workers who are agreeable, respectful, and obedient rather than innovative and independent [73].

2.7.4. Control

Mexican and Pakistan workers accept authority, power distance, and status and role identification [71]. Following instructions, rules and standards are minimal in both of these cultures. Mexican and Pakistani cultures resemble to each other though, however, Mexicans workers would prefer more social mechanisms (i.e., friendship, trust) to control them since they do not like formal (technical) controls (i.e., rules, standards). Mexican workers will usually do the work as favor not his or her duty as a job. He will feel less or no accountable to his job

rather he will do it for personal relationship and maintain his image among the workers [48]. In American culture, control is accepted and practiced through procedures, standards, and other explicit and formalized control mechanisms such as management objectives and performance-based evaluation and promotions [72]. Mexicans tend to be comfortable with inequalities of authority, whereas Americans prefer sharing authority with peers and bosses in the workplace [74].

2.7.5. Time management

Though, both in Mexico and in Pakistan, time is an uncontrollable factor, which is controlled by nature not by human being, however, because of the historical background (British legacy in Pakistan), Pakistani worker will tend to be on time always to the work. Junior workers will be expected to be on time to their offices. For an ordinary Pakistani, time has no concept and therefore, getting things done on time is quite impossible [41]. Managers may exercise flexibility in their time management. Assignments can be accomplished in the last minutes. Appointments may not be considered as commitments in some parts of the country [71]. Being late for an appointment shows that the person is a boss. His esteem rises. Yet, punctuality is expected of foreigners [41]. Since Pakistan has several subcultures, approach to time management may vary from state to state or even from city to city within a state. In Mexico, generally speaking, time is a relative concept and a Mexican worker cannot be expected always to be on time. American punctuality, time management, and planning are universally known and appreciated. For Americans, time is money and time can be invested and wasted.

2.7.6. Employee motivation

Both Mexico and Pakistan are developing economies where the importance monetary benefits to meet the basic needs is high. Therefore, job-related satisfaction is given priority over other human needs such affiliation and esteem. Though some findings suggest that motivation in Pakistan may require the provision of affiliative needs and social recognition, it can be associated with the type of profession [71]. In American culture, where masculinity, consumerism, and social class are based on ownership (money, properties), good salaries, and other tangible economic/financial benefits can be a good source of motivating and keeping employees motivated.

2.7.7. Role of religion in the workplace

Islam as religion of the 95% of the population in Pakistan has a strong role in organizational culture in comparison with the Catholic influence in the Mexican organizational culture. Even though Mexicans are considered religious in belief and refer to God for everything they do in life as Muslims do, however, since the separation of church from the government, Mexicans are found to be relatively less conservative in practice. Any company in Pakistan whether of foreign origin or national has to allocate a prayer room where employee can say their prayers during office hours, extend lunch breaks for Friday prayers and shorter office hours during Ramadan, the month of fasting [45]. Such religious practices and rituals are very rare to found in companies located in Mexico regardless of their origin and nationalities. In the USA, people

Variables	Mexico	Pakistan	USA
Management style	Autocratic and paternalistic	Autocratic	Pragmatic
Decision-making process	Centralized and individualized	Centralized and individualized	Consensual
Staffing procedures	Connections, references	Connections, references	Merit and achievement
Control	Social control is accepted	Technical control is accepted	Technical control is accepted
Time management	Less punctual	Punctuality varies	Punctuality at all cost
Role of religion at workplace	Exists but not strong	Very strong	None existence
Motivation strategies	Social recognition and economic benefits	Social recognition and economic benefits	Economic benefits and social recognition

Table 3. Comparative analysis of management cultures: Pakistan, Mexico, and USA.

keep secular views of religion and being religious is something very personal. Having said that, the American Protestant work ethics, which promotes productivity, hard work, commitment, and good time management, has dominated the global work culture.

Table 3 summarizes the differences and similarities among the corporate management cultures of the three countries under investigation:

3. Discussion and conclusion

The three countries under analysis inherit rich and diverse cultural and historical backgrounds. America (USA) is considered a melting pot as a cultural system because of its cultural diversity and being an immigrant society. The historical influence of British, Spanish, and French cultures in combination with the mass mobilization of people from Asia, Africa, and Latin America has led to the conclusion that America's culture is everybody's culture [75]. The Mexican culture as well has passed through various deculturation and acculturation eras initiating with Aztecs and Mayan kings to the era of Spanish empire and French invasion. In spite of these historical events and occurrences, and the fact that America, the most influential nation in the world is its neighbor, Mexico has been able to keep its identity intact as a Latin American culture [76]. The Pakistani culture has seen even more complex and diverse intrusions in its history dated back to the invasion of Alexander the great; the Mongols, the Moghuls; the Persian; and the British a few to narrate. Since its arrival in early eighth century, Islam has been the dominant religion in the region (now Pakistan, India, and Bangladesh), but the influence of many other religions including Buddhism and Hinduism can be observed in some parts of Pakistan [41].

While comparing American, Mexican, and Pakistani national and corporate cultures, it is found that American organizations are well organized and hierarchies are established to facilitate the operations. Employee and manager relationships base on equality and achieving organizational objectives. Information sharing, consultation, and participating decision-making are common

practices in American organizations. Employees are expected to be self-reliant. The system of hiring, promoting, and decision-making are based purely on merits and expertise. The American society is self-achievement and interpersonal competition driven. Americans live to work and therefore, monetary benefits and rewards leading to higher social status are successful motivation strategies in American companies. Americans like changes and accept new ideas and practices. The American society promotes self-sufficiency, independency, and individualism, which consequently influence the American companies to be less autocratic and more flexible with employees having control over operational-level decision-making and supervision [74].

Pakistan organizations are typically authoritarian and decision-making is located at the top due to large power distance. Employee autonomy is limited, top-bottom communication is minimal and bottom-up communication is nonexistence [41]. Organizational structures are bureaucratic and not generally responsive to the needs of employees. Existing theories also suggest that creative management is limited by rigid rules and regulations and thus individual initiatives and contributions are nonexistence in Pakistan organizations whether they are public or private [77]. The Mexican society is family-oriented, hierarchical and therefore, social classes and unequal power distribution are accepted. Consequently, in Mexican organizations, authority is concentrated in the top management, no delegation of authority and decisions are centralized [78]. Both organizational culture in Mexico and Pakistan tend to be person-oriented [10] since in both countries authority is a figurehead, paternalistic, and powerful. Motivations are generally intrinsic, personal respect is important than monetary benefits. Otherwise, this culture is considered as a family culture where close-to-close but hierarchical relationship exists. This is in the sense that the father of a family has experience and authority greatly exceeding those of his children. This is power-oriented organizational culture in which the head is regarded as a caring father who knows better than his subordinates what should be done and what is good for them. In such organizational culture, the pressure is social and moral than financial or legal. In contrast to the both Pakistani and Mexican cultures, the American culture tends to be more transaction (job, task)oriented which leads to create organizational cultures of productivity, self-control, responsibility, and independency among the workers.

Overall, social organization (the importance of family), the spirituality (the importance of religion), and the external influence are relatively similar when comparing Mexico and Pakistan. However, the American reflects a clear distinction from Mexican and Pakistan cultures. Pakistani national culture is an amalgamation of Islamic religion, Indian origins, British inheritance, and American influence [45]. Similarly, Mexican national culture is a combination of the Catholic religion, Spanish heritage, American influence, and the indigenous origin. In general, both Mexican and Pakistani national value systems based on community, group life, strong need for dependency, respect for the authority, dominance of elite class in social and political life, culture of broken promises, and poor human development record. Both Pakistani and Mexican cultures are collectivist and high-power distance cultures [7]. According to Hofstede four national dimensions, Pakistan and Mexico are considerably similar to each other and are in the same group of countries with large power distance-collectivist dimensions [13].

In conclusion, commonness in the national value systems of Mexico and Pakistan, the two geographically distanced, but socioculturally close nations have a significant effect on the

value systems of the organizations. This presents several opportunities for the organizations in these two countries. Organizations in different sectors such as oil and gas, textile, education, consulting, research and development can make up strategic alliances to pursue international business ambitions. In addition, companies from Mexico can make direct invest in the Pakistani market and similarly companies from Pakistan can do business in Mexico without fearing of the cross-cultural constraints. Both Mexico and Pakistan are close strategic and business allies of the USA for a long time. Especially, Mexico as a NAFTA member nation depends for almost 80% of its international business/investments on the USA.

4. Implications and recommendations

The finding of this chapter presents implications for the corporate leaders in many ways: (1) Even though the Mexican and Pakistani cultures are found to have vivid similarities, these two nations are located far from each other geographically (the distance). Mexico is geographically close to the USA but culturally very far from it. Pakistan is far from the USA both geographically and culturally; (2) Spanish and Urdu languages are in the group of high-context languages in the world of communication, but still Spanish and Urdu are different languages. Managers from both sides must learn the language in order to communicate and understand the culture. English is a low-context language, but it has become a generic and common business and management language globally. In spite of the fact that Catholicism and Islam share the same faith-roots, differences are huge between Mexican Catholics and Pakistani Muslims when it comes to the practice of religion and the importance given to the religion in one's daily life. Social organization is formed around extended family infrastructure in Pakistan as in Mexico, whereas the US social organization is much more decentralized to nuclear family establishment. Corporate leaders from the USA can have difficult time while working with employees from either Mexico or Pakistan. Other variables of power distance, uncertainty avoidance, collectivism/individualism, masculinity/femininity, and time concept used in this study and the effects of these variables on corporate management cultures suggest that Mexicans and Pakistanis tend to be more similar than different. Again, being Latin American vs. South Asian cultures, the realities on ground can present challenges for managers from both side.

Given all those implications described above, managers and investors from the three countries are advised to take national cultures as well as organizational culture into account when developing national and organizational business polices and standards. Managers and investors from these three countries are well aware of the fact that the world is becoming a global village and the need for cross-cultural learning is increasing with the growth of business organizations beyond their national boarder [79]. Individuals bring cultures of origin to work that reflect their particular ongoing histories in various cultural contexts, such as national culture [80]. In this manner, culture guides our choices, commitments, and standards of behavior [81]. Corporate managers are global and have to understand differences in global cultural system. They should be able to work on those differences and adopt managerial practices which are cultural sensitive and responsive [82].

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5. Limitations in the study and future studies

This analysis in this chapter is based on the conceptual analysis of the causal relationship between the national cultural variables and the corporate management culture variables. Such studies are considered research problem explorers and theory ground-breaker therefore, are viewed useful for further studies in the field. Exploratory studies such as this one establish the context for further quantitative analysis, identify needs for the research, broaden the knowledge of the researcher, and clarify the existing theories in the field of study [83]. However, such research endeavors are viewed descriptive, general and are criticized for not presenting field data, statistical analysis, and other quantitative procedures to establish the relationship among the research variables. Research quality can be influenced by the researcher personal experience, rigor is more difficult to achieve, and findings are difficult to understand [84]. Moreover, some researchers question the validity and reliability of the findings of such studies since the information is obtained through document analysis and secondary sources. This demands from the researcher to scrutinize and critically evaluate the source or the origin of the information used in the study.

Therefore, future studies in the field should consider several considerations. First, studies should only analyze the relationship whether correlations or causal relationships between the research variables, but also and most importantly to give weight to the moderating and mediating variables. **Figure 2** demonstrates that there several emerging variables (factors) that can have powerful moderating roles in establishing the relationship between the dependent (corporate management culture) and independent (national culture) variables in this study. For example, **Figure 2** suggests that variables such as information technologies, globalization, internationalization of HRM, business strategic alliances, workforce diversity, and regionalization may have moderating impacts on how national cultural variables can influence the corporate management cultures. In order to expand the research scope and strengthen the generalization of the results, a few more dependent variables (employee motivation, management orientation, work ethics, and loyalty) could be added to the study and analysis.

Figure 2. The role of moderating variables.

In terms of the research methodology used in the study, future studies should use quantitative methods in order to make the study outcomes more understandable and acceptable in the scientific research community. The quantitative method also enhances the validity and reliability of the research results and consequently the recommendations. Qualitative studies as this one are generally appreciated for being explanatory, detailed, and in-depth. Also, changes in the direction of the study are easier as new information emerges and data/information collected based on human observations is more powerful than the quantitative data [85]. On the other side, qualitative studies being dependent on the researcher skills and thus can be easily influenced by the researcher personal biases. It is time-consuming and difficult to assess and communicate [85]. A more formal and field-based study involving business organizations from two countries should be built in order to explore the reality on the ground. This chapter is surely a step forward in that direction.

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Chapter 4

Project Organizational Culture Framework in Construction Industry

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Additional information is available at the end of the chapter

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Abstract

Project organizational culture (POC) has been recognized as a significant influencing factor of the success or failure of a project. Although numerous studies on this topic have been conducted to develop organizational culture models, these have mainly been for generic business settings, and one has not yet been developed for construction organizations at the project level. The aim of this chapter was to perform this task in Vietnam. A case study shows that cultural artifacts were arranged into a five-factor project organizational culture framework: "Project goal setting," "Contractor assurance," "Cooperative emphasis," "Empowerment assignment," and "Workforce emphasis." The chapter's findings suggest that the construction contracting organizations are more focused on the culture of mission and adaptability, with a relatively higher emphasis on clear project goals and contractor assurance. They favored a culture of involvement less, with a relatively lower emphasis on empowerment and workforce.

Keywords: project organizational culture, project culture framework, organizational culture, project management, construction project organization

1. Introduction

Over the years, numerous studies have been conducted on the concept of culture, offering a list of over 160 various definitions of culture [1]. Essentially, culture is acknowledged as a set of learned mores, values, attitudes, and meanings that are shared within a group of people. In the last decades, culture has been examined either in various environments or under various levels; the studies are frequently conducted for national culture, industry culture, and organizational culture. Particularly, renowned organizational culture models have been proposed within consideration of an organization's effectiveness.

In the context of construction project organizations (CPOs), among the critical success factors (CSFs) of a CPO, culture factors arguably play a vital role in the success or failure of project management [2–8]. Cultural factors are essential determinants of management practices; thus, culture has recently been examined in the study as a CSF of construction projects [9–11]. To ensure the success of a CPO, management should pay significant attention on understanding of culture aspect and explain how culture's impacts can contribute to the CPO' effectiveness. Although cultural form and its influences are widely recognized in generic businesses, it is still the least studied area in the study of construction management. Thus, studies exploring project culture framework that have intended to provide a useful tool for assisting project management have been focused on less than others (e.g., procurement approaches, project characteristics, or management mechanisms). Among the few studies attempting to explain the form of organizational culture within the project level, Kumaraswamy et al. [12] defined a project culture model within four overlapping groups of sub-cultures: organizational sub-cultures, operational sub-cultures, professional sub-cultures, and individualistic sub-cultures. Thomas et al. [13] employed the Competing Values Framework model, which is based on four basic organizational forms (Market, Clan, Hierarchy, and Adhocracy) to identify the project culture orientation on 13 Australian construction projects. Zou et al. [14] proposed a project culture model based on the study of organizational models, which focuses more on the partnering contract procurement in China, including the five dimensions of integrative, cooperative, goal-oriented, flexible, and people-oriented. More recently, Stare [15] suggested a project organizational culture model that emphasizes the attitudes of top and line management in various Slovenian business enterprises related to IT, product development, and civil engineering, which was then used to examine the influence of the model on project performance.

Summarizing the above review, although multiple studies have addressed the formulation of organizational culture, such research has been disparate, and the culture dimensions have been analyzed based on the concepts of organizational culture that are built under the valued-based approach for generic business settings. This approach has been criticized because organizations differ more in work practices than in values [16]. In addition, CPOs are known as temporary settings to which multiple individuals with diverse backgrounds and professionals contribute to the construction project organization, which results in different human behavior and different expectations for a project. Hence, the individuals involved who present complicated behaviors and/or attitudes significantly influence the success of a project. Cultural differences are also believed to be capable of generating conflicts related to individual communication, which decreases the capacity of construction organizations to achieve project objectives [17, 18]. Hence, these studies, to some extent, do not address issues of definition and identification of POC with respect to work-based practices, particularly emphasizing the construction project organizations setting. Nevertheless, questions regarding POC remain unanswered in the context of the construction industry and deserve further investigation. Therefore, this chapter aimed to fill this research gap.

The purpose of this chapter is to define project organizational culture within the perspective of work-based practices. This approach is significant for project management practices, providing a useful tool for supporting the project participants in decision making to archive project objectives as well as the stakeholders' own benefits. After the introduction, we structure our work in six

sections. First, the theoretical framework is presented. Next, a case study POC is introduced. Then, the discussions of the results and background of our findings are presented. The conclusions are consequently drawn. In the last section, the limitations and future research are made.

2. Theoretical framework: understanding of project organizational culture

Although culture has been examined widely at different levels of analysis from national culture to organization-level culture, there is still no agreement on the definition of organizational culture. Schneider [19] described organizational culture as things that have been existing in the way people do things around here to succeed. In a more formal manner, Schein [20] defined organizational culture as a pattern of shared basic assumptions that is learned by a group within an organizational setting, to which organization members share the way of feeling, perceiving, and thinking to devote great efforts to solve or explain its problems of external adaptation and internal integration. In the comparable ways, organizational culture refers to the norms, values, and beliefs that form expected behaviors of employees [21, 22], or organizational culture reflects the unique pattern of norms, values, beliefs, and ways of behaving within groups to which it characterize the manner that members combine to get things done [23]. In the work of McNamara [24], organizational culture is also argued as the assumptions, values, norms, and tangible signs (artifacts) of organization members and their behaviors, in which new members consciously or unconsciously are coming to engage with the particular organizational culture for becoming another person. Hofstede [25] and Hofstede et al. [26] defined organizational culture as the collective mental programming that differentiates an organization's members from another.

Furthermore, organizational culture is agreed with as the way of behaving, identity, pattern of dynamic relationships, "reality," or genetic code within an organization [19]. It is regularly grounded in the philosophies related to the organization's members and is learned by new members through a process of socialization [27]. Organizational culture can also be viewed as the set of elements of an organization that regulates its manner of operating, being, decision making, communicating, and others [28]. In addition, it is argued that organizational culture is rooted in the basic and universally shared problems [20, 29], dilemmas [30], or contradictions [31] which all members of an organization have to deal with. Efforts made by the members to resolve and/or explain these problems and reconcile dilemmas or contradictions regularly yield solutions that are reliable and repeatable, and reflect the organizations' underlying cultural paradigm [20]. Groups of people may encounter the comparable fundamental problems, but each those groups might find their own unique solutions for these problems that set them apart from each other; as a result, this systematic effort is perceived as their culture [29].

In addition, multitude models have been proposed for evaluating organizational culture in the study. Among those models, the following well-known ones have been commonly utilized for years. The typology culture model was firstly proposed by Harrison [32] and then modified by Handy [33], who suggested that four main types of culture exist in organizations: "power

orientation," "role orientation," "task orientation," and "person orientation." This model emphasized on how processes are conducted and decisions are made within a culture. Deal and Kennedy [34] proposed a model of corporate culture that emphasizes on what kinds of decisions have to be made—are the stakes high and how quickly does the decision maker know if the decision was right. The model encompasses four types of culture: "Work Hard/ Play Hard," "Touch- Guy/Macho/Star," "Process," and "Bet-Your-Company," which are based on two dimensions: the risk level of the company's businesses and the speed of feedback on decisions and/or strategies are made. Hofstede et al. [35] defined an organizational culture model founded on six dimensions: internally driven versus externally driven; easygoing work discipline versus strict work discipline; local versus professional; open system versus closed system; employee-oriented versus work-oriented, which is defined as perceived common practices (i.e., symbols, heroes, and rituals) that carry a specific meaning within the organizational unit; means-oriented versus goal-oriented. Denison and Mishra [36] identified four different cultural traits that reflect diverse dimensions of an organization's effectiveness: adaptability, mission, involvement, and consistency. Schneider [19] defines a four-square-matrix culture model that emphasizes more on the way of thinking in the decision-making process, including four dimensions: "Collaboration," "Control," "Cultivation," and "Competency." The Competing Values Framework proposed by Cameron and Quinn [37] recognizes four types of culture in organizations: Clan, Adhocracy, Hierarchy, and Market, to which the values held by the organization are emphasized.

The study on this issue has shown that definitions of organizational culture commonly pertain to basic assumptions [20], values and norms [23], beliefs [23], and mental programs [26]. Furthermore, organizational culture is defined as manners of behaving [6, 23] and work practices [16]. The divergence of the standard definition of organizational culture is understandable since the concept of organizational culture was derived from anthropology, where there was no consensus on culture's meaning [38]. Hence, there is no surprise of a multiplicity in culture definitions and its applications within organizational studies, making cultural appearances contextually diverse. Culture manifestations are either the large invisibilities that pertain to values, beliefs, and underlying assumptions [20, 29], or the visibilities, including artifacts, creations, and behavioral norms [20], which were referred to as "practices" by Hofstede et al. [26]. Thus, it could be argued that values and practices are two-side reflections of culture. Values reflect the preferences of people in work and life-related issues, whereas practices reflect the employees' descriptive perceptions of aspects of the work environment or actual work situation [26]. Hence, culture will become more readily readable when approaching from the two-side descriptions of culture, values, and practices.

Although traditional approaches have largely analyzed organizational culture based on the concept of values and basic assumptions, which are known critical aspects of organizational culture, the study has argued that organizations are more recognized in work practices than in values [16, 26]. It has also been argued that because significant aspects of values are often observable through organizational practices, there is also undoubtedly a capacity for measurement of values from work practices [26, 39]. This approach is also in line with the argument that the traditional approach of culture based on notions of shared values, beliefs, and basic assumptions is inadequate; instead, organizational culture should be argued from a strongly

operational perspective—"as embodied in the organization's structures, mechanisms and practices" [40]. In this form, culture is reflected in concern actions that characterize the interactions between individuals and working life rather than statements of values and beliefs; this may be a poor starting point for understanding culture and is out of step with culture as implemented in actions. Culture should thus be understood in a way that reflects the decisions, choices, options, and explanations related to norms of behavior and practice [40]. Taken together, these arguments support the view that consistent and widespread practices reflect organizational culture [41]. It is justifiable to approach culture from its reflections, the organizational practices, which are more readily observable and measurable and can thus be compared across organizations and directly related to individual and organizational performance.

Organizational practices are described as "particular ways of conducting organizational functions that evolved over time… [These] practices reflect the shared knowledge and competence of the organization" [42]. Based on these concepts of organizational practices, organizational culture is specifically defined as "a shared perception of organizational work practices within organizational units that may differ from other organizational units" [39]. Specifically, the construction project organization is performed as a temporary organization, where diverse contracting organizations gather and set the pattern of interrelationships, authority, and responsibility to accomplish the project's goals and objectives within the project life cycle. In the domain of project management, the CSFs in terms of managerial support, communication, relationships, participant involvement, and decision making [4, 43, 44] have been explored, which may be viewed as the "cultural" manifestations at the project level that assess the patterns of project participants' regular work behaviors and/or attitudes over the course of the project.

This study therefore proposes that project organizational culture can be identified by examining relevant project participants' work behaviors that reflect the methods of explanation or resolution for problems encountered over the course of a project. To develop each project's organizational culture, it was therefore necessary to examine the sources of practice problems that project participants must address or for which they must find solutions. Building upon this perspective of cultural identification, examining project participants' work behaviors is pivotal to determining culture within project organizations. Measuring cultural artifacts is thus expected to involve examining the level of project participants' work behaviors. Thus, when examining the dimensions of the organizational culture of a construction project, one could argue that a useful source of information should be obtained in consultation with key practitioners involved in the project delivery process.

3. Project organizational culture framework: a case of construction industry in Vietnam

This section presents findings derived from our contemporary studies on POC. It shows the POC approach, how the research methodologies were conducted, and research results were interpreted.

3.1. Identifying project organizational culture artifacts

To approach organizational culture from perspective of work-based practices, literature review focus group studies (FGSs), face-to-face interviews, and field observations were the key tools used to develop culture artifacts. Cultural artifacts identified from the literature reviews were further verified and adapted by the interviews, FGSs, and field observation before they were adopted as the measures in the survey. In the first stage of cultural artifact development, the FGSs, which are considered a good approach for investigating the cultural differences [45], were conducted within construction practitioners in Vietnam. In total, six FGSs were conducted in the six largest metropolitan cities in diverse areas in Vietnam: Ha Noi (the capital), Hai Phong (the largest economic city in the eastern North), Ho Chi Minh (the largest economic city in the South), Vinh (the largest economic city in northern midland), Da Nang (the midland capital city), and Can Tho (the main city of the Mekong Delta in the south), with one FGS in each city. The participants invited in each FGS were well-experienced construction professionals working for clients, contractors, and consultant businesses in the cities, with nine participants in each FGS. The selected participants' backgrounds included architects, designers, surveyors, project managers, and supervisory officers. In the second stage, face-to-face interviews were conducted with key experts. This stage covered the customization of the preliminary list of identified cultural artifacts in stage 1. Targeted interviewees included professionals with adequate experience in managing construction projects. In addition, field observations were conducted within on-going and complete construction projects in Vietnam to obtain a clear view of practices related to the study data collection.

The purpose of the FGSs and face-to-face interviews was to discuss the common problems in regard to the project delivery process and to clarify the traits of project organizational culture. Discussions and interviews were performed based on a semi-structured manner. A selection of primary questions is listed as follows: (1) what common problems occur over the course of a project? (2) Can you describe those problems in detail? (3) Have you ever heard of culture as a general concept or from the perspective of project management? (4) What do you understand about culture within CPOs? (5) How would you describe project organizational culture? (6) What should cultural artifacts measure in terms of project participants' behaviors/attitudes? (7) In your experience, who is appropriate for assessing these behaviors or attitudes?

The face-to-face interviews and FGSs with stakeholders suggested that the cultural artifacts should measure behaviors that reflect practices over the course of a project. Particularly, these practices should concern with (1) how project participants are expected to clarify the pursuit of project goals, which relates to participant responsibility for project goals, clear objectives for participants, participant commitment to achieve project goals, and conflicts of interest; (2) the work environment that assists project participants in interacting with and supporting each other over the course of a project, which relates to information sharing, the openness of the environment, support from top management, mutual trust among participants, mutual respect among participants, and assignment of blame in the event of disruptions; (3) emphasis on workforce, which should pertain to work conditions, employee participation in decision making, work training, and the respectful treatment of workers; (4) the extent to which project participants commit to project goals in the context of balancing them with other potentially competing goals,

which relates to contractor commitment to project performance, client commitment to the agreement, and the accountability of supervisors, and (5) how project managers or project leaders transfer his/her roles over the course of a project, which includes the competency of the project managers and project team leaders, communication between the project manager and subordinates and participant involvement in decision-making processes. As a result, 29 artifacts were enlisted and suggested for the measurement of project organizational culture (**Table 1**).

3.2. Data collection and measures

Based on the studies and discussions with key project's stakeholders, case-specific data were collected by practitioners involved in construction projects in Vietnam who served as project managers for clients and contractors. This approach was also validated by consultations for a pilot study to determine that clients and contractors with positions of project leaders, managing directors, and senior engineers were mostly the appropriate respondents to the survey. In the pilot study, scholars and professionals were invited to review and comment. Those participants included five professors who were affiliated with universities in the field of project management, 15 expert professionals who were five senior managers from contractors, six project managers from clients, and five senior engineers from consultant companies. Having 21 interviewees was well qualified in a qualitative study, which is above the 15 threshold suggested by Bertaux [46]. Meanwhile, all of 21 interviews were in agreement with the verification.

As a result, official questionnaires were distributed to 419 randomly targeted participants who were asked to answer the specific survey questions based on the most recently completed project in which they participated. A final sample of 199 valid responses was obtained for investigation. Among the final set of valid samples, 169 of the respondents were from contractors and the remaining 30 were from clients. Regarding respondents' backgrounds, 100% of the respondents played roles as project managers during the project delivery, and 79% of them had more than 5 years of experience in construction project management. Regarding the types of projects, 110 of the projects were infrastructure systems, including roads, bridges, and water supply systems; 78 of the projects were residential and/or commercials buildings; and 11 of the projects were industrial facilities. Regarding the scale of the projects, 49 were large investments (national level), 113 were mid-range investments (budget >VND 15 billion), and 37 were small-scale investments.

The respondents were asked to indicate their experience in a recently completed construction project on a five-point Likert scale of one (strongly disagree/not at all satisfied) to five (strongly agree/extremely satisfied). Principal component analysis (PCA) was conducted to examine the factor structure of the cultural artifacts as collected. PCA is an effective tool for demonstrating convergent and discriminant validity and for principally diminishing the number of variable factors [47] and avoiding multicollinearity [48]. The eigenvalue is reliably used to establish a cutoff when the number of artifacts is between 20 and 50 [47]. Hence, using the eigenvalue criterion is appropriate for this study, which was performed with 29 artifacts. Factors with eigenvalues greater than or equal to 1 were considered significant. In addition, Cronbach's alpha was used to verify the reliability of the factorized artifacts [49]. The alpha value ranged from 0 to 1; the higher the alpha value, the more reliable the groupings of artifacts. Cronbach's alpha value greater than 0.7 is considered "good" and/or "acceptable" in reliability testing [49, 50].

Project organizational culture artifacts	Descriptions
• Project objectives clarification • Obligation clarification by contractors • Obligation clarification by clients • Mutual understanding • Commitment of project benefits	• Objectives and values of the project are clearly understood by project participants. • The contractors clearly understand their required roles and duties. • The client clearly understands their required roles and duties. • All project participants concern each other's objectives, expectations, and values. • When disputes or conflicts occur, the participants first look at how the project would benefit rather than how they would benefit.
• Effective interactions at work • Information exchange • Roles of project manager • Trust-sharing atmosphere • Mutual respect and openness • Idea exchange and support • Assignment of blame and accountability	• Effective working relationships among the participants are promoted in terms of exploring innovative solutions and reducing costs and time spent. • Information is shared, transparent, and available to participants over the course of the project. • Project managers assist, support, and clearly communicate with their subordinates, ensuring accomplishment of project objectives. • There is an atmosphere of mutual trust generated by project participants. • The project participants are open and respectful of one another. • The project participants are encouraged to exchange ideas and to help one another. • Assignment of blame and accountability issues is (not) emphasized when things go wrong over the course of a project.
• Value project participants' contributions • Available opportunities • Promote empowerment • Recognize achievements • Emphasize training works • Encouragement of respectful attitudes toward workers • Emphasize good conditions for workers	• All project participants are valued as important contributors to the success of the project. • All project participants are encouraged to develop their capabilities over the course of the project. • Project participants are empowered to make decisions by themselves at any level. • Project participants take pride in or celebrate achievements when they achieve production milestones. • Workers are scheduled to attend any training sessions regarding skills and safety. • Workers are really being treated with respect over the course of project. • Workers are concerned about health and welfare.
• Contractor's assurance to project quality • Contractor's assurance to project schedule • Contractor's assurance to project budget • Supervisor's obligation to work • Client's obligation to agreements	• The contractors emphasize committing to the project's success with regard to quality. • The contractors emphasize committing to the project's success with regard to the schedule. • The contractors emphasize committing to the project's success with regard to contract costs. • The supervisor emphasizes obligation to making the project successful. • The *client* emphasizes obligation *to the contract agreements.*
• Emphasize leadership • Encouragement in decision making • Direction by project leaders • Instruction by project leaders • Participation in decision making	• Project leaders are encouraged to show their strong leadership. • Decision making is liberally encouraged at every level. • Project leaders always ensure that their subordinates know what is expected of them. • Project leaders always ensure that individual accountability is clear. • All project members are encouraged to participate in the decision-making process over the course of the project.

Table 1. Artifacts of project organizational culture.

3.3. Exploratory factor analysis on project organizational culture artifacts

PCA was employed to investigate the underlying factors of 29 cultural artifacts. The results of the PCA (**Table 2**) using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, which is relatively higher than the suggested threshold of 0.60 [51], and Bartlett's test were highly significant ($p > 0.000$) [47], showing that the data were suitable for factor analysis. Factor loadings above the 0.40 threshold were considered [52, 53]. The final results of the exploratory factor analysis showed that the five cultural components that were initially extracted accounted for 62.49% of the total variance in the 29 cultural artifacts with an eigenvalue greater than one, indicating five project organizational culture factors. Cronbach's alpha values ranged from 0.66 to 0.90, which indicates that the internal consistency reliability of all extracted factors was acceptable [52].

Eleven artifacts were extracted as significant in cultural factor 1 (C1): (AG1) project's objectives clarification, (AG2) obligations clarification by contractor, (AG3) obligations clarification by client, (AG4) mutual understanding, (AC2) information exchange, (AC3) roles of project manager, (AC4) trust-sharing atmosphere, (AP1) value project participants' contributions, (AP2) available opportunities, (ASA4) supervisor's obligation to work, and (AH1) leadership. Considering the artifact descriptions provided in **Table 1**, artifacts (AG1, AG2, and AG3) can reflect the effectiveness of project goal clarification over the course of a project. The remaining items in cultural factor 1 could be used to assess the degree to which people are reliable and motivated in terms of achieving project goals. This culture factor is called *project goal setting*. Cultural factor 2 (C2) comprised nine items: (AG5) commitment of project benefits, (AC1) effective interactions at work, (AC5) openness and mutual respect, (AC6) idea exchange and support, (AC7) assignment of blame and accountability, (AP4) recognize achievements, (ACA5) client's obligation to agreements, (AH4) instruction by project leaders, and (AH5) participation in decision making. The conceptualization of the artifacts extracted in factor 2 contributes to cooperation in the work environment. Thus, cultural factor 2 is called *cooperative emphasis*. Three items were significantly organized in cultural factor 3 (C3): (ACA1) the contractor's assurance of project quality, (ACA2) the contractor's assurance of the project schedule, and (ACA3) the contractor's assurance of the project budget. These artifacts reflect the degree to which the contractor is committed to project outcomes. Thus, this cultural factor is called *contractor assurance*. Cultural factor 4 (C4) is labeled *workforce emphasis*, which consists of three artifacts that are associated with the extent to which the workforce is concerned: (AP5) emphasize training works, (AP6) encouragement of respectful attitudes to workers, and (AP7) emphasize good conditions for workers. The taxonomy of factor 5 (C5) includes three items: (AP3) promote empowerment, (AH2) encouragement in decision making, and (AH3) the direction by project leaders. This cultural factor is called *empowerment assignment* because the extracted items reflect the level at which empowered individuals are involved in making decisions regarding the achievement of the project goals. In summary, the PCA identified the following five factors of project organizational culture for the construction industry: (C1) project goal setting, (C2) cooperative emphasis, (C3) contractor assurance, (C4) workforce emphasis, and (C5) empowerment assignment. These factors are suggested as the formulation of a construction project organizational culture framework in industry.

Project organizational culture artifacts	Code	Project organizational culture components				
		1 (C1)	2 (C2)	3 (C3)	4 (C4)	5 (C5)
Project objectives clarification	AG1	0.72				
Obligation clarification by contractor	AG2	0.52				
Obligation clarification by client	AG3	0.64				
Mutual understanding	AG4	0.72				
Information exchange	AC2	0.58				
Roles of project manager	AC3	0.50				
Trust-sharing atmosphere	AC4	0.54				
Value project participants' contributions	AP1	0.54				
Available opportunities	AP2	0.53				
Supervisor's obligation to work	ASA4	0.51				
Emphasize leadership	AH1	0.47				
Commitment of project benefits	AG5		0.48			
Effective interactions at work	AC1		0.48			
Openness and mutual respect	AC5		0.60			
Idea exchange and support	AC6		0.57			
Assignment of blame and accountability	AC7		0.65			
Recognize achievements	AP4		0.41			
Client's obligation to agreements	ACA5		0.44			
Instruction by project leaders	AH4		0.70			
Participation in decision making	AH5		0.64			
Contractor assurance to project quality	ACA1			0.74		
Contractor assurance to project schedule	ACA2			0.84		
Contractor assurance to project budget	ACA3			0.79		
Emphasize training works	AP5				0.74	
Encouragement of respectful attitudes to workers	AP6				0.79	
Emphasize good conditions for workers	AP7				0.78	
Promote empowerment	AP3					0.58
Encouragement in decision making	AH2					0.77
Direction by project leaders	AH3					0.61
Eigenvalue		12.47	1.86	1.49	1.23	1.07
Variance (%)		43.00	6.40	5.15	4.25	3.69
Internal consistency reliability (Cronbach's alpha)		0.90	0.89	0.87	0.88	0.66
Kaiser-Meyer-Olkin measure of sampling adequacy	0.92					
Bartlett's test of sphericity	3.130E3					
Approx. chi-square	406					
dif.	0.000					
sig.						

Table 2. Results of factor analysis on project organizational cultural artifacts.

4. Result interpretations and discussions

To examine the higher explanatory power of cultural dimensions for project performance, the statistical characteristics of all components are discussed. **Table 3** shows the mean value (MCV) and standard deviation (SDCV) of the CV of the artifacts categorized in each component. The MCV and SDCV in each component are represented as C1 (low, high), C3 (medium, low), C2 (medium, high), C4 (medium, high), or C5 (high, low). With the introduction of the combination values of MCV and SDCV, the statistical characteristics of each component can be comprehensively discussed. **Table 4** shows the frequency, mean, and standard deviation of the significance scores (SSs) and their ranks and the coefficient variation (CV) of each cultural artifact.

The first characteristic of C1 is its high explanatory power of the variance in PCFA, which is 43.0% (**Table 4**). C1 dominates in capturing the structural characteristics of the SSs of all artifacts much more effectively than the other components. Thus, C1 is the most "authoritative criterion" to judge whether each project belongs to the "majority" or "minority." The second characteristic of C1 is low MCV. Low MCV indicates a high mean and a low standard deviation of the SS. Thus, the artifacts in C1 were practiced most intensively and widely in the surveyed projects. Therefore, the characteristics of C1 are its dominant power to capture the structural characteristics of the entire data of the SSs and the most intensive and wide practice of its artifacts. The practical interpretation is that a project in which artifacts in C1 are not intensively practiced is considered a minority project (from the second characteristic) and actually a "true" minority project (from the first characteristic). These characteristics are expected to be the foundation of C1's high explanatory power for project performance.

The first characteristic of C3 is a lower explanatory power of the variance in PCFA than C1, which was 5.15% (**Table 2**). It should be noted that C3 thus does not form "major" statistical structural characteristics of the SSs of all artifacts, unlike C1. The second characteristic of C3 is medium MCV and low SDCV. Medium MCV indicates a medium mean and a medium standard deviation of the SS. Medium MCV implies that artifacts in C3 are generally practiced intensively and widely but not as intensively or widely as in C1. Low SDCV indicates that the CVs are not varied among the artifacts in the component. To determine the reason for this lack of variance, the correlation coefficients of the SSs among the three artifacts in C3, namely ACA1, ACA2, and ACA3, were examined. These correlation coefficients were 0.586, 0.727, and 0.771 in the ascending order. Accordingly, it is possible that all artifacts are practiced similarly. The third characteristic of C3 is its straightforward interpretation: contractor assurance. All artifacts concern contractor assurance. Therefore, the characteristics of

Statistics criteria	C1	C2	C3	C4	C5
Mean of CV (MCV)	0.198	0.263	0.239	0.259	0.337
Standard deviation of CV (SDCV)	0.0300	0.0346	0.0127	0.0371	0.0145

Table 3. Mean value and standard deviation of the CV of the artifacts categorized in each component.

ID	Cultural artifacts	Frequency of significance score (SS)					Number of valid samples	Mean of SS	SD of SS	Mean rank	SD Rank	Coefficient of variation (CV)	CV rank	Component category
		1	2	3	4	5								
AG2	Obligation clarification by contractor	0	5	14	155	25	199	4.01	0.55	2	1	0.136	1	C1
AG3	Obligation clarification by client	0	6	11	143	39	199	4.08	0.61	1	2	0.149	2	C1
AP2	Available opportunities	0	12	42	130	14	198	3.74	0.68	6	3	0.181	3	C1
AG4	Mutual understanding	1	12	34	133	19	199	3.79	0.71	4	4	0.189	4	C1
AH1	Emphasize leadership	1	14	37	131	16	199	3.74	0.73	5	6	0.194	5	C1
AH3	Direction by project leaders	1	18	49	124	6	198	3.59	0.72	13	5	0.201	6	C4
AP1	Value project participants' contributions	0	16	28	123	31	198	3.85	0.78	3	8	0.201	7	C1
AG1	Project objectives clarification	2	17	36	128	16	199	3.70	0.78	7	9	0.210	8	C1
ACA5	Client's obligation to agreements	0	23	44	117	14	198	3.62	0.78	11	10	0.217	9	C2
AC4	Trust-sharing atmosphere	1	24	52	114	7	198	3.52	0.77	16	7	0.220	10	C1
ACA1	Contractor assurance to project quality	1	22	43	118	15	199	3.62	0.80	10	11	0.221	11	C3
AC3	Roles of project manager	0	21	51	104	23	199	3.65	0.82	9	12	0.225	12	C1
AC2	Information exchange	1	24	35	119	19	198	3.66	0.83	8	14	0.227	13	C1
AC1	Effective interactions at work	1	25	46	110	17	199	3.59	0.84	12	17	0.233	14	C2
AP4	Recognize achievements	1	25	59	99	14	198	3.51	0.82	17	13	0.235	15	C2
AC6	Idea exchange and support	0	28	50	104	16	198	3.55	0.83	14	15	0.235	16	C2
ACA3	Contractor assurance to project budget	0	34	44	110	10	198	3.48	0.84	18	16	0.240	17	C3
ASA4	Supervisor's obligation to work	0	33	43	108	14	198	3.52	0.85	15	18	0.242	18	C1
ACA2	Contractor assurance to project schedule	1	36	44	103	15	199	3.48	0.89	19	22	0.257	19	C3
AC5	Openness and mutual respect	1	35	46	99	15	196	3.47	0.89	20	20	0.257	20	C2

ID	Cultural artifacts	Frequency of significance score (SS)					Number of valid samples	Mean of SS	SD of SS	Mean rank	SD Rank	Coefficient of variation (CV)	CV rank	Component category
		1	2	3	4	5								
AH4	Instruction by project leaders	1	48	63	81	6	199	3.22	0.86	23	19	0.269	21	C2
AP3	Promote empowerment	4	41	45	101	7	198	3.33	0.91	22	24	0.274	22	C4
AH5	Participation in decision making	2	58	60	74	5	199	3.11	0.89	26	21	0.287	23	C2
AG5	Commitment of project benefits	6	38	56	76	22	198	3.35	1.01	21	26	0.301	24	C2
AH2	Encouragement in decision making	2	72	60	60	5	199	2.97	0.90	28	23	0.303	25	C4
AP6	Encouragement of respectful attitudes to workers	5	56	50	72	13	196	3.16	1.00	25	25	0.316	26	C5
AC7	Assignment of blame and accountability	12	42	56	68	19	197	3.20	1.07	24	29	0.335	27	C2
AP5	Emphasize training works	8	66	41	73	9	197	3.05	1.03	27	27	0.337	28	C5
AP7	Emphasize good conditions for workers	8	80	45	52	12	197	2.90	1.04	29	28	0.357	29	C5

Table 4. Frequency, mean, and standard deviation of the significance scores (SSs) and their ranks and the coefficient variation (CV) of cultural artifacts.

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C3 are summarized as follows. C3 does not form major statistical structural characteristics, unlike C1. However, C3 is interpreted straightforwardly, and all artifacts are practiced intensively, widely, and similarly. The practical interpretation is that if one artifact is not intensively practiced in a project, the other two artifacts are also less likely to be intensively practiced. Thus, a project in C3 is clearly differentiated from other projects that have an intensive practice of artifacts. These characteristics appear to be the foundation of C3's high explanatory power for project performance.

The first characteristic of C5 is a lower explanatory power of variance in PCA than C1, which was 3.69% (**Table 2**). Thus, it should be noted that similar to C3, C5 does not form the "major" statistical structural characteristics of the SSs of all artifacts. The second characteristic of C5 is high MCV and low SDCV. High MCV indicates a low mean and a high standard deviation of the SSs. High MCV implies that the artifacts in C5 are generally practiced least intensively. In some projects, however, these artifacts are practiced intensively. Low SDCV indicates that the CVs are not varied among the artifacts in the component. To determine the reason for this lack of variance, the correlation coefficients of the SSs among the three artifacts in C5, namely AP5, AP6, and AP7, were assessed. These correlation coefficients were 0.687, 0.703, and 0.756 in the ascending order. Accordingly, it is possible that all artifacts are practiced similarly. The third characteristic of C5 is its straightforward interpretation: workforce emphasis. All artifacts implicate workforces. Therefore, the characteristics of C5 are summarized as follows. C5 does not form major statistical structural characteristics, similar to C3. However, C5 is interpreted straightforwardly. Although the artifacts are practiced least intensively, there are also some projects in which all the artifacts are practiced intensively. The practical interpretation is that if one artifact is intensively practiced in some project, the other two artifacts are also likely to be intensively practiced. Thus, a project in C5 is clearly differentiated from other projects that have a less intensive practice of artifacts. These characteristics seem to be a foundation of C5's high explanatory power for project performance.

Likewise, C2 and C4 have similar characteristics. The first characteristic is a lower explanatory power of variance in PCA, similar to C3 and C5, which was 6.40 and 4.25%, respectively (**Table 2**). The second characteristic is medium MCV and high SDCV. In particular, the values of SDCV in C2 and C4 were 0.0346 and 0.0371, respectively, which were more than twice as high as in C3 and C5. To determine the reason for this difference, the correlation coefficients of the SSs among the nine artifacts in C2, namely AG5, AC1, AC5, AC6, AC7, AP4, ACA5, AH4, and AH5, and the correlation coefficients of the SSs among the three components in C4, namely AP3, AH2, and AH3, were evaluated. Regarding C2, there were 36 correlation coefficients (=9*8/2). The distribution of their values is as follows: 0.300–0.399: 8; 0.400–0.499: 17; 0.500–0.599: 10; and 0.700–0.709: 1. Regarding C4, the correlation coefficients were 0.370, 0.382, and 0.449 in the ascending order. These correlation coefficients were generally smaller than those in C3 and C5. The above analyses of C3 and C5 suggest that the necessary condition for C2 and C4, which have lower explanatory powers of variance in PCA, to have a high explanatory power for project performance is to have high correlation coefficients of the SSs among artifacts in each category. However, C2 and C4 do not satisfy this necessary condition. Even if some artifacts are practiced intensively in one project, other artifacts are not necessarily practiced intensively. Thus, it is difficult to clearly differentiate projects based on C2 and C4.

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A high explanatory power of C3 and C5 for project performance is worth noting because they have a much lower explanatory power of variance in PCA than C1. In the data structure of the SSs of all artifacts, the difference in the SSs of the artifacts in C3 and C5 was not as conspicuous as in C1. However, their improvement is expected to contribute to the enhancement of project performance. Furthermore, the mean values of the SSs in C3 and C5 were lower than in C1. This finding indicates that there is more room for improvement for C3 and C5 than for C1. This result is useful for project participants who would like to enhance their project as well as for policy makers who discuss and establish the future direction of the Vietnamese construction industry.

The project organizational culture dimensions were ranked by calculating the factor scores based on the average mean scores of each factor's artifacts. The mean score of these five factors indicated that the factors were above-average identifiers of project organizational culture in the construction industry, as shown in **Figure 1**. Moreover, problems have been reported in project performance in Vietnam with regard to poor quality, cost over runs, delays, and client dissatisfaction [54, 55]. This finding may infer a relevant connection between project organizational culture and project performance.

First, the cultural dimension of "project goal setting" (C1), which was ranked highest, can be connected with the cultural trait of mission in the model of Denison [56]. The specific indexes in this project cultural dimension clarify the goals and objectives, vision and strategy, which can provide project members with a clear direction for their work, answering the questions "where are they going" and how is their daily work" that contribute to the achieved project goals. This finding is also supported by the works of Cheung, Wong [51], who found that "goal setting and accomplishment" were significant among organizational culture dimensions in Hong Kong's construction industry. This finding clarifies the belief that a project organization is identified by its project participants' behavior, which in turn is formed by the project goals

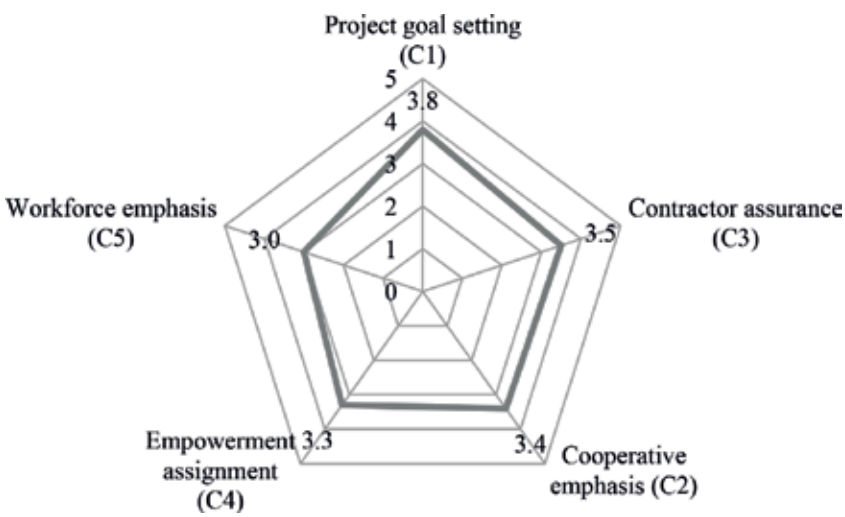

Figure 1. Framework of project organizational culture.

that are established and manifested by the activities implemented by the project members over the course of a project. In other words, clear project goals instruct the formulation of a project plan and viable execution. In addition, based on the results, the trust atmosphere is encouraged to be set. This finding may explain that with high uncertainty and conflicted benefits in construction contracts, the building of reliance rapports helps to promote agreement among project participants and reduces potential risk for all involved parties over the course of the project, contributing to the achieved project goals.

The project culture dimension of "cooperative orientation" (C2) refers to a coordination and integration culture with diverse participants and units of a project's organization, which helps project participants understand the mutual influences of their acts and ensures that all project members work together toward common goals. This result is to be expected. Due to the fragmented nature and temporary get-together of the construction industry, a highly cooperative orientation characterized by the free exchange of ideas and support, openness and respect, collaboration orientation, and the sharing of responsibility among construction project participants is an essential foundation for project success. By offering cooperation, project participants look forward to lessened project costs, shared project risks and rewards, and expanded mutual profits [57].

The project culture dimension of "contractor assurance" (C3), which was a relatively highly ranked factor, aptly reflects the emphasis placed on contractor obligation to contract, which acts as a customer-focused characteristic toward adaptability culture [56]. These results are also in line with previous findings which suggest that the contractor significantly influences project performance [4]. This culture orientation reflects the fact that contractors are more concerned about the needs to react to and serve the client and constantly commit more capacity for satisfaction of the client's future needs and expectations. Moreover, what is intriguing is the fact that construction project performance in terms of poor quality, over budget, and time delays has been reported for years in developing countries, such as Vietnam [48]. It can be inferred from this finding that practitioners appear more concerned about the prioritization of contractors on site.

The project culture dimension of "empowerment assignment" (C4) provides project members who have the requisite authority, initiative, and capacity with opportunities to organize and oversee their responsibilities at work over the course of a project. These results are not surprising in the domain of project management. Under the natural complexity and uncertainty of construction project management, promoting empowerment cultures enhances the capacity to acquire feedback or suggestions from project members at various levels to management and the decision-making process, which is pivotal to reducing risks and improving project performance. In addition, offering this culture can create a sense of ownership and responsibility for all project members, promoting greater emotion in work toward the project organization goals. For organizations where employees are encouraged to speak up and be heard, this reflects that organizations are "using their greatest asset to its highest potential and, in return, are becoming more competitive in the emerging global economy" [58].

Finally, commitment to the cultural dimension of "workforce emphasis" (C5) generally indicates the culture of capability development [56] to which the project organization shares

Test method	Statistics	Project goal setting (C1)	Cooperative emphasis (C2)	Contractor assurance (C3)	Empowerment assignment (C4)	Workforce emphasis (C5)
Kruskal-Wallis test	Chi-squared	0.49	1.27	1.75	0.98	0.29
	P-value	0.48	0.26	0.19	0.32	0.59

Table 5. Analysis of variance (ANOVA) in regard to respondents' professions.

constant commitment to the development of employee skills and enhancement of work environment to remain competitive and improve competencies. However, the evaluation of this culture dimension obtained the lowest-ranked factor with a neutral score. This finding is compatible with previous research arguing that the construction industry maintains a lower priority on investment of the workforce as its greatest asset [59], and the construction industry also has one of the worst reported industry records with regard to health and safety and a poor record for recruitment and retention [60]. It can be inferred from this finding that the construction industry needs to pay more attention to training and development, health and safety conditions, decent site conditions, fair allowances and wages, and environment and sustainability, which are key to enhancing the industry's productivity.

The analysis of variance (ANOVA) results of this study indicated that at a 99% confidence level (i.e., at the $p < 0.01$ level) (**Table 5**), there were no significantly different mean scores among groups of respondents for the five project organizational culture factors. This means that despite their association with different types of involved organizations, the two groups of project stakeholders (clients and contractors) shared similar views regarding project organizational culture in the construction industry. However, this finding differs from previous studies, which have argued that the contracting organizations in a construction project have different backgrounds, business objectives, leadership styles, life cycles, and work patterns. Thus, the different contracting organizations may develop different cultures [17, 61]. It can be inferred from this finding that both groups of respondents agree with the practices on representativeness of the identified project organizational culture factors instead of their conventional perceptions, which proves the highly relevant practice that contracting organizations can develop common core values within a project.

In summary, the five factors identified by the PCFA in this chapter analyses are valid measures of project organizational culture, which reflects the practice-specific aspect of the construction industry.

5. Conclusions

This chapter aimed to better define project organizational culture and to detect its framework based on the work practice approach, which was characterized by the practices experienced over the course of a project. In this respect, 29 artifacts of project organizational culture were first derived through FGSs, literature review, and face-to-face interviews with practitioners in the industry. Using Vietnam as a case study, measurements of the experiences of construction

practitioners were then used in PCA to classify these artifacts into five factors of project organizational culture.

The most highly ranked project organizational culture factors of "project goal setting" emphasize the importance of clarification of project goals and objectives in which all project members are clearly provided direction and scope for their work over the course of a project. In addition, the relatively highly ranked project organizational culture factor of "contractor assurance" reflects the culture of customer focus, within which contractors are noted as the pivotal element to assure project performance. The project organizational culture factor of "cooperative emphasis" highlights the fragmentation characteristics and diverse individuals involved in a construction project. This makes perfect sense in construction project management, as having a cooperative atmosphere ensures that all project members mutually understand and work well together toward common goals. The factors of "empowerment assignment" and "workforce emphasis" reflect people-focused cultures, within which the human resource is viewed as the greatest asset. It thus implies that project management should invest more in humanity, to which project members are associated with a greater sense of ownership and responsibility, leading to a greater commitment to the project organization and an increased capacity for autonomy in the achievement of project goals.

The analyses identified no significant differences in the assessment of the culture factors provided by project stakeholders. The acceptance of these factors with moderate mean scores by the two groups of construction professionals suggests that core common values in projects can be generated by devoting efforts to derive project goals and objectives instead of individual benefits among contracting organizations. The policy implication is that project stakeholders should focus more efforts on promoting managerial practices that are deemed most cultural in the construction industry, potentially contributing to the practice of effective change in project management.

6. Research limitations and future research

This study suffers from limitations. First, the data collected were national character may yield some cautions of the generalizability of the research findings. In addition, there were broad cultural artifacts and sophisticated definition of cultural terms that may also appear non-friendly to practitioners in the industry. Future studies should consider a larger volume of data that can focus on conducting a comparative assessment using data from separate project stakeholders. This will provide a clearer understanding of how different stakeholders view common practices of project delivery.

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Conflict of interest

There is no conflict of interest.

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Chapter 5

Organizational Culture as a Determinant of Construction Companies' Competitiveness: Case Study of Croatia

Ivana Šandrk Nukić

Additional information is available at the end of the chapter

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Abstract

The aim of this chapter is to assess the organizational culture in construction industry in Croatia. The introductory part of the chapter highlights the purpose of the study presented in terms of learning the characteristics of the current and preferred organizational culture of the Croatian construction industry as well as understanding the relationship between the culture and competitiveness. Being a transitional country, Croatia is facing the need for behavior change of companies seeking competitive advantage, especially after becoming a part of the united European market. In a labor-intensive business like construction, adaptation of companies strongly depends on the underlying values and assumptions of their employees. Therefore, change management implies a need to learn about culture profiles. Results of the conducted research reveal culture profiles within construction industry in Croatia in respect of the size, core business, regional orientation and ownership of the analyzed companies. The preferences of existing engineers together with expectations of Generation Y have been also considered in order to anticipate the trends and necessary changes of organizational culture in construction industry in Croatia. Finally, findings of the cross-country analysis of culture's implications on competitiveness will be presented, proving that culture's role should be considered by decision makers trying to improve competitiveness.

Keywords: organizational culture, competitiveness, construction industry, trend, Croatia

1. Introduction

Human behavior is significantly determined by organizational culture. As one of the biggest authorities in the field says, organizational culture is a reflection of the basic assumptions

shared by members of a group, which defines the group's view of itself and its environment as well as its way of performing daily activities [1]. It should be emphasized that in terms of organizational culture, group can stand for a nation, an industry segment, a company or any other relatively stable social construct. However, there are authors pointing to differences between organizational culture and national culture. Although there is a consensus that culture is always about sharing collective values and behavior by members of the group, national cultures differ mainly on the level of fundamental values, while organizational cultures alter more on the level of perfunctory practices and can be more manageable. As such, organizational culture is determined by the national culture [2–4].

At present, there is a growing interest in studying the relationship between the organizational culture and the company performance resulting from its competitiveness [5]. It seems that with the world economic globalization aggravating, organizational culture as a soft power has become a weapon used to seize the opportunity to meet the challenges and achieve sustainable competitiveness [6].

As in culture, the competitiveness is also being analyzed at different levels. Evaluated from the company level competitiveness, over sectoral to national and global competitiveness [7, 8], those levels in fact correlate with the abovementioned levels of culture. Since competitiveness is considered a key determinant for growth and new jobs creation, it is a concept that has been intensively discussed. World Economic Forum assesses the competitiveness of 140 economies in its Global Competitiveness Report [9], providing insight into the drivers of their productivity and prosperity. Those drivers are organized in 12 relatively independent pillars, but since all those pillars are very people-driven, it can be easily assumed that they are closely related to national and organizational culture.

In the light of the abovementioned facts, the purpose of this study is to learn the relationship between the culture and competitiveness as well as the competitiveness implications of the current and preferred culture profile characteristic of the Croatian construction industry.

In order to fulfill so defined purpose, several research objectives have been set:

- to determine which organizational culture types are currently dominant in Croatian construction industry and their subcategories
- to identify preferred organizational culture types by both engineers and engineers-to-be, in order to suggest the direction of the recommended organizational change
- to investigate if there are any culture dimensions that are statistically significantly associated with competitiveness and to what extend

There are several reasons making these goals worth studying. First of all, previous research [10] indicates that there is a significant correlation between a construction company's organizational culture and the company performance, but at the same time it implies the knowledge gap and the need for further analysis in order to present that correlation in more detail.

Furthermore, being a labor-intensive business, construction industry is especially sensitive to basic assumptions shared by project team members or any other critical group. That is why Wilco Tijhuis, joint-coordinator at working-commission W112 "Culture in Construction,"

part of the International Council for Research and Innovation in Building and Construction, said that the capability of handling the culture-issue within construction processes was a kind of risk-management tool because it reduced the risk of behavioral miscommunication [11].

Construction industry is indeed a group with a specific culture. It is mostly the result of a distinct business environment: geographically distributed nature of construction, dynamic nature of site management, highly mobile and itinerant work force, the large number of different companies and organizations that have to work together in a project (designers, contractors, supervisors, etc.) and a fixed duration of construction project [12]. Finally, construction industry has been exposed to intense business globalization recently, and in the international context, the need for understanding and appreciating the culture has become even more important [13–15].

After describing applied methodology, this chapter provides insight into characteristics of the organizational culture present in Croatian construction industry, followed by the findings of the expected culture change in the future, respecting the preferences of current and future engineers. The remainder of the chapter presents results of the cross-country analysis of competitiveness and culture correlation, while final conclusions are intended to make key lessons from the overall research more visible.

2. Research methodology and applied methods

The research presented in this chapter was in fact an extensive case study, conducted in several phases over the last 3 years. It was designed in a way to reflect all relevant aspects of the subject and purpose of this study. As a result, different scientific methods were applied.

The first phase was intended for the secondary data analysis. During that phase, scientific methods of analysis and synthesis of the relevant literature were used, followed by descriptive method and classifications of identified key issues, as well as compilation method with the aim of setting the more specific goals for the empirical part of the research. Findings from this research phase were used mostly in the introductory part of this chapter as well as for the interpretation of the later empirical results.

After secondary data analysis had pointed out the aspects whose research would give an additional value to the study through building the extant knowledge, the first empirical phase of the study was conducted. It was the analysis of organizational culture of the Croatian construction industry. There is a variety of measure instruments used to assess the organizational culture, out of which the Competing Values Framework and Organizational Culture Assessment Instrument (OCAI) have been adopted as methods for this study, because OCAI was verified as reliable in measuring organizational culture in construction sector [16].

As a measurement tool, OCAI is based on the Competing Values Framework, which was developed during the 1980s [17, 18] for assessing and profiling the dominant cultures of organizations. As shown in **Figure 1**, this framework is consisted of two dimensions: the first dimension measures organizational focus from internal to external and the second dimension differentiates a focus on flexibility, discretion and dynamism from focus on stability, order and control.

Such a dispersion of basic values results in four quadrants, each representing a distinct type of organizational culture: the clan, the hierarchy, the adhocracy and the market. Basic characteristics of specific culture types are also visible in **Figure 1**. Although different, it is important to emphasize that none of these types is dominant over the others, only some types can be more appropriate in a certain context [19]. However, recent research [20] shows that whichever culture type might be dominant, it exerts a positive influence on both internal (innovation competence and human relations) and external (profitability, growth and reputational assets) performance only if it is balanced, that is if there are no significant deviations of individual culture perceptions from the "average," shared cultural value.

Speaking of OCAI itself, it identifies fundamental cultural aspects of the organization through six key dimensions [19]: the dominant characteristics, the leadership style, the organizational glue, the strategic emphasis, the criteria of success and the management of employees.

Each of the six key dimensions encompassed by OCAI has four alternative statements, representing the abovementioned different culture types. The study of organizational culture has been carried out by filling in the OCAI questionnaire, during which the respondents rated their organizations' culture by dividing 100 points among those four alternatives in each dimension, depending on the extent to which each alternative was similar to their own organization. A higher number of points should have been assigned to the alternative that was the most similar to their organization. Finally, individual scores have been used as an indication of the consensual view of the organizational culture of the group tested.

For the purpose of researching organizational culture of the Croatian construction industry [21, 22], a two-round modified OCAI anonymous and online survey has been conducted: in

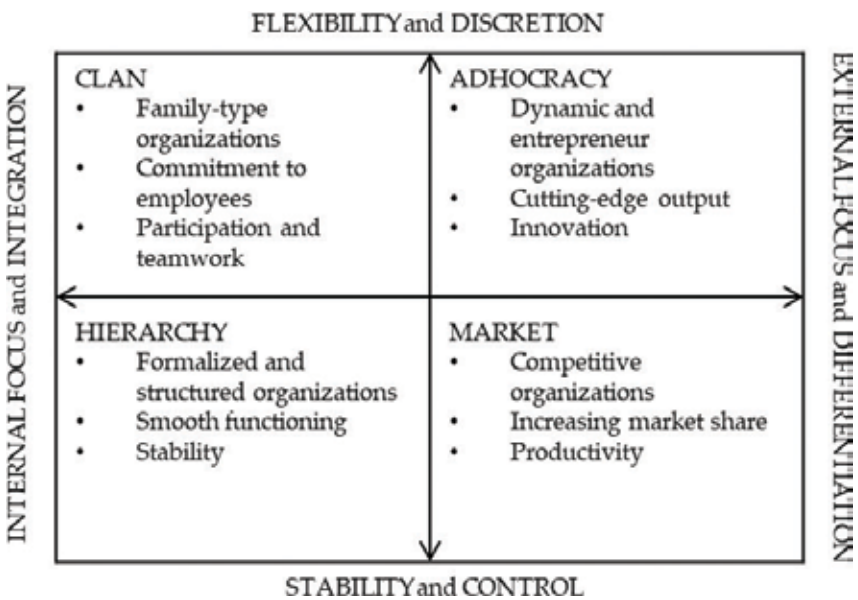

Figure 1. Competing values framework [17].

round 1, respondents assigned points in order to reflect the existing organizational culture of their organization, while in round 2, they assigned points to the same questions, but regarding the culture they would prefer. In that way, not just the current culture was assessed but also the insight into the preferred organizational culture was illustrated. Additionally, potential organizational change does not depend only on preferences of existing employees but also on the opinion of generations to come. OCAI was used also to test the preferences of the civil engineering students [23].

During the final phase of the case study presented in this chapter, methods testing the relationship of culture and competitiveness were used. Given the type of data collected, these methods were more quantitative than previously mentioned methods. In order to measure national competitiveness, the World Economic Forum has constructed the Global Competitiveness Index (GCI). GCI provides a weighted average of 114 indicators, grouped into 12 pillars of competitiveness, each of which reflects one aspect of the complex concept of competitiveness [9]. Therefore, the investigation [24] was conducted on a sample comprising participants of 64 countries, using GCI as correlation and ordinary least squares regression variables, to determine the relationship between national competitiveness, cultural dimensions and economic development. GCI scores reflecting the national competitiveness, were dependent variables, while Hofstede's culture dimensions [18] were adopted as independent variables and GDP per capita, indicating that economic development was treated as a control variable.

3. Culture profile of the Croatian construction industry

During the study of organizational culture of the Croatian construction industry [21, 22], OCAI was distributed to all construction companies registered in the Croatian Chamber of Economy. The respondents from construction companies were positioned as operative management level employees or higher, who could influence the organizational culture, at least within their own team and scope of work. In total, 108 valid responses were obtained from construction companies all over Croatia. Descriptive statistics of the sample is presented in **Table 1**.

It is interesting that the study [21, 22] results identified hierarchy as the dominant culture type of the sample. This means that construction companies in Croatia are mostly highly formalized and structured organizations. People are kept together by well-defined procedures and leaders are primarily good coordinators and organizers. Success depends on predictability and efficiency. In such organizations, people accept a hierarchical order in which everybody has a place and which needs no further justification. Hierarchy in an organization is seen as reflecting inherent inequalities, centralization is popular, subordinates expect to be told what to do and the ideal boss is a benevolent autocrat [25]. Average values of the current organizational culture types in Croatian construction companies are presented in **Table 2**.

Data regarding the culture types that are present in the Croatian construction industry were additionally tested using the Welch's version of t-test from the software package Statistica 12 [21, 22]. At the significance level 0.05, the test suggested that although dominant culture

Characteristic of the respondent	Frequency	Ratio (%)
Gender		
Male	71	65.74
Female	37	34.26
Age		
<30	13	12.04
30–40	45	41.67
40–50	30	27.78
50>	20	18.52
Size of the company		
<10 employees	16	14.81
10–49 employees	29	26.85
50–249 employees	42	38.89
250–499 employees	6	5.56
>499 employees	15	13.89
Type of the company		
Civil engineering contractors	35	32.41
Building construction contractors	17	15.74
Supervision	8	7.41
Consulting	14	12.96
Design	34	31.48
Location of the company's head office		
Eastern Croatia	49	45.37
Zagreb, central and north Croatia	18	16.67
Istria, Kvarner and Primorje	17	15.74
Dalmatia	23	21.30
Dubrovnik region	1	0.93
Ownership of the company		
Public	19	17.59
Private	89	82.41
Ownership of the company		
Foreign	10	9.26
Domestic	98	90.74

Table 1. Croatian construction industry sample's characteristics [22].

type of the sample is hierarchy, none of the culture types has an absolute domination over the population. However, such a major dominance of hierarchy culture type is bad for the overall competitiveness of construction industry. A recent study confirmed hierarchy culture

Culture type	Mean score
Clan	26.05
Adhocracy	18.50
Market	26.49
Hierarchy	28.96

Table 2. Current organizational culture in Croatian construction companies [21].

had a negative impact on organizational learning and therefore was considered as a barrier to innovation [26]. Another study [27] confirmed that there was no doubt that the innovation behavior was a key of the sustainable competitiveness. In fact, organizational culture stands out as the common element in implementing the innovation and development of competitive advantage, especially in organizations exposed to dynamic changes, seeking to adjust and to ensure their permanence in the market [28].

In addition, test confirmed that adhocracy culture was never a dominant culture type of the Croatian construction industry. That is amiss because an empirical investigation on effects of organizational culture showed that adhocracy culture has a positive effect on organizational learning, resulting in positive effects on technological and administrative innovation [26]. There are even some intra-profession studies [29, 30] verifying that lack of adhocracy characteristics harms the innovative behavior of construction companies, thus having a negative impact on their competitiveness and performance. Literally, innovativeness is the most important factor of all different cultural factors affecting the construction companies' performance [23]. Acknowledging all those findings, decision makers in Croatia should probably also consider the results [31] suggesting that government support could moderate adhocracy culture and its relationship with sustainable construction.

Understanding the organizational culture in construction industry provides an opportunity to apply effective management practices that will improve performance and thus increase the level of both business level and national competitiveness. For the same reason, it is necessary to deepen the knowledge regarding the culture profile. Hereinafter, culture differences related to firm's core business, size, ownership and regional orientation shall be also presented and discussed.

Construction industry consists of several different stakeholders, working together on mutual projects with common goals. There are some evidence-based studies [32–34] about particular participants of the construction industry that have different objectives and different organizational cultures, which causes the conflicts among them while trying to accomplish the mutual project goals, thus being one of the principal causes of poor performance in construction projects. These findings reveal a motive for studying organizational culture differences regarding the specific core business of construction companies [22].

The study [22] revealed differences among Croatian construction companies too. The absolutely dominant culture type of consultants and supervisors, as expected, is hierarchy. Tested consultants and supervisors mostly come from the faculties of civil engineering and other

companies under public ownership, and later results showed that the hierarchy is a typical culture profile of public companies. Furthermore, civil engineering contractors show the mixture of the market and the hierarchy culture profiles, while building construction contractors and designers function as predominantly clan type organizational cultures. Therefore, although the Croatian construction industry's sample proved to be primarily hierarchy type, as stated earlier, testing different subcategories of subjects additionally confirmed that none of the culture types has an absolute dominance over the overall industry.

Such conclusions are in accordance with the study of the UK construction industry [32], which interpreted hierarchy culture as appropriate for civil engineering contractors, who are usually formal organizations in which control and coordination are achieved by using formal methods and procedures. On the other hand, the study marked designers as informal organizations in which control and coordination are achieved through empathy between organizational members and through direct personal contact, typical for the clan culture. Other studies revealed similar results as well. For example, market culture presence in contracting rather than in designing companies was indicated as compliant with the dynamic nature and competitive environment of site management [33, 35].

Another distinction [22], worth of exploring, was organization's size. The size of the companies was measured by the number of employees, as illustrated in **Table 2**. It was detected that small companies with up to 49 employees, and especially the micro-companies with up to 9 employees, feel that they function within the clan type of the organizational culture. But, it seems that once a company reaches a certain size, hierarchy makes everyday business both more efficient and comfortable. Therefore, organizational culture type recorded as the current in medium sized and large organizations is hierarchy. Hierarchy tendency growing in line with the company size has been reported by other scholars too [17].

Differences regarding organizational culture depending on the ownership of analyzed organizations were investigated in terms of public and private ownership as well as in terms of domestic and foreign ownership [22].

Current differences concerning the identified mixture of the clan and market type organizational culture in private companies and absolutely dominant hierarchy type organizational culture in public companies, could be overcome if managers in both subcategories would acknowledge their influence on communication and performance and try to manage long-term organizational change toward the desirable culture type, which will be presented later in the chapter.

As for the differences regarding predominantly domestic or foreign ownership of organizations in the Croatian construction industry, hierarchy appears to be the dominant culture type in both subcategories.

Finally, analysis based on geographical differences [22] was conducted as well. The very south and the very north of the Adriatic coast (Dubrovnik region as well as Istria, Kvarner and Primorje) show the current domination of the clan culture type, while construction companies in other parts of Croatia currently function within the hierarchy culture. Hopefully, physical distance of these regions reduces the risk of conflicts among belonging companies.

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4. Expected culture in Croatian construction industry as a direction of potential organizational change

Up to now, presented arguments qualify organizational culture as an important issue that should be carefully managed in order to increase the probability of achieving better results and competitive advantage at all levels. Additionally, it should be appreciated that organizational culture is a phenomenon built and adjusted over a longer period of time. Usually, organizational culture is initially determined by the founder of the company. However, as every organization is actually a dynamic entity existing in a changing environment, the task of management is to continuously develop and adapt the organizational culture to ensure its adequacy to elements of internal and external business environment [19]. If trend is acknowledged as the development tendency of a phenomenon [36], one could conclude that it is important to consider trends while analyzing organizational culture. This means that appreciating the culture identified as preferred for the future is an important aspect of managing the organizational change and adapting to the environment.

During the course of the study presented in this chapter, future organizational culture of the Croatian construction industry was tested both from the aspect of existing engineers and the aspect of civil engineering students.

Parts of the research [21, 22] testing the preferences of the existing engineers identified a discrepancy between the current and preferred type of organizational culture in Croatian construction companies. These results are presented in **Table 3**.

Obviously, predominant preferred culture type is clan, which could lead to construction companies becoming a friendly place to work in, actively encouraging loyalty and collaboration in the workplace. In organizations like that, managers act as mentors and success is a result of a high commitment. Additionally, Welch's t-test showed that, at the significance level 0.05, clan is the dominant preferred culture type of the whole population. Therefore, propensity toward team work and family-type organizations turns to be a prevalent way of thinking in the overall construction industry in Croatia.

The mutual relation of current and preferred organizational culture in the Croatian construction industry can be presented as in **Figure 2**, with dotted line showing the preferred culture and the full line showing the actual, current organizational culture.

Preferred organizational culture was determined also for the relevant subcategories of the construction industry [22]. As expected, after identifying clan as being an absolutely dominant culture type wanted in future, almost all the tested subcategories expressed their preferences toward it. Only a couple of subjects would prefer hierarchy as the culture type wanted in the future:

- supervisors,
- large and extra-large companies with more than 250 employees,
- foreign construction companies in Croatia

Culture type	Mean score
Clan	33.97
Adhocracy	23.64
Market	16.21
Hierarchy	26.18

Table 3. Preferred organizational culture in Croatian construction companies [21].

As all the others prefer friendlier and more participative work environments characterized by the clan organizational culture and since the share of the discrepancies detected above is rather small, they are not considered very risky regarding potential disputes in construction projects.

Furthermore, this study was also complemented by the analysis [23] exploring which organizational culture type is preferred by civil engineering students in terms of their desirable employer in the future. This analysis started with the assumption that organizational culture of a company is primarily formed by employees working at a certain management level, having the power to influence the values and basic assumptions that are respected by others. Furthermore, civil engineering students are the population that will most likely attain management positions in construction companies over time, which makes their expectations and preferences relevant to development tendencies.

The analysis [23] was conducted among full-time students in their final year of study at the Civil Engineering Faculty Osijek, Croatia. The study was based on previously described OCAI

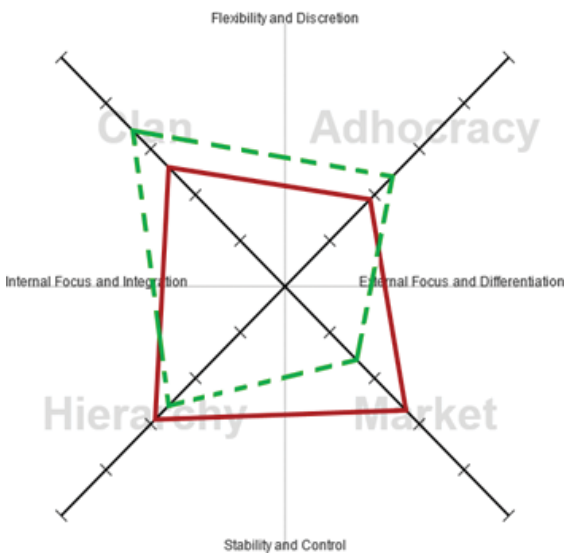

Figure 2. Relationship of current and preferred organizational culture in Croatian construction industry [21].

questionnaire, but measuring only the preferred culture. Sixty-three students completed the questionnaire, which comprises 86.3% of the selected population. The nature of the sample is described in detail in **Table 4**.

By analyzing the whole sample, it was found [23] that most of the students, namely 38.9% of respondents, preferred the clan as the type of organizational culture they would like to experience after graduation. Evidently, students' preferences coincide with previously presented preferences of the employed in construction industry in Croatia. Engineers and future engineers seem to aspire to work in a company whose success is primarily the result of employee loyalty, tradition as well as mutual cooperation and respect of all employees. Overall students' preferences are presented in **Table 5**.

As seen from **Table 5**, the dominant clan culture, adhocracy and hierarchy were identified as approximately equally desired organizational cultures, while the least preferred culture type was market. As adhocracy encourages risk-taking and experimentation with new knowledge and technologies, which makes such companies dynamic, innovative, creative and highly entrepreneurial [30] and thus more successful than the others [29], it is promising that adhocracy type won such a high score. On the other hand, high preference of the hierarchy culture suggests that, even by the young, modern organizational development imposed by the nature of work in construction industry is not fully recognized. Hierarchy organizational culture is just as good as any other culture type, but it is more appropriate for activities where rigid forms and procedures are necessary. On the contrary, modern construction industry is characterized by organic organizational structures, such as project and matrix structures, increasingly replacing traditional hierarchical structures [23]. As for the market organizational culture, its

Responding students' characteristics	**Frequency**	**Ratio (%)**
Gender		
Male	35	55.56
Female	28	44.44
Faculty department		
Hydro-technics	17	26.98
Bearing structures	29	46.03
Organization, technology and management in construction	17	26.98
Desired future employment		
Contractor	25	39.68
Designer	26	41.27
Other	12	19.05
Desired place of work		
Croatia	31	49.21
Abroad	32	50.79

Table 4. Descriptive statistics of the selected students sample [23].

Culture type	Mean score
Clan	38.90
Adhocracy	24.61
Market	13.23
Hierarchy	23.25

Table 5. Relative preferences of the future employer's organizational culture [23].

lowest score could have been expected, not just because it was the case of working population's preferences, but the literature proves that the market type is rarely a dominant organizational culture in construction industry, occasionally preferred only by contractors [34].

Finally, it is fascinating that the results of this study [23] show a distinct homogeneity of the tested sample. Clan is a dominantly preferred culture type regardless of gender: in terms of gender, adhocracy and hierarchy won pretty much the same scores, only market culture was somewhat rather chosen by male students than by female students. Furthermore, the differences among students depending on the faculty department at which they study, desired place of work and desired future employment practically do not exist. It should be highlighted that homogeneity in terms of desired employment is contrary to previous findings about differences between contractors and designers, often resulting in conflicts due to different ways of thinking [22, 32–34]. Such congruity among future contractors and designers might actually be interpreted as a future competitive advantage of Croatian construction industry, because it should contribute to the success of communication between main stakeholders involved in the same building project.

There are only four civil engineering faculties in Croatia. The results presented earlier focused on students' expectations at only one of those faculties. Therefore, the results illustrate only the sample preferences and not the preferences of the whole student population at relevant faculties in Croatia. However, given that Croatia is a small country and considering that the results provide information about the attitudes of nearly a quarter of the population, they can be considered a fair indication of overall trends of organizational culture in Croatian construction industry.

5. National culture's influence on competitiveness

World Economic Forum defines competitiveness as the set of institutions, policies and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the country can achieve [9]. Official opinion of the National Competitiveness Council in Croatia is built on that basis, describing competitiveness as a group of elements, development policies and institutions which, by their correlation, influence the general level of productivity and the quality of the business sector and business environment [37].

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Countries around the world are at different stages of their development and thus at a different level of their competitiveness. Building on previous findings [38–40] that some culture variables affect economic and business performance at the country level, a more detailed cross-country investigation of national culture's role in explaining competitiveness was conducted as part of the research presented in this chapter [24].

As for the national culture dimensions, this study [24] relied on Hofstede's culture dimensions. Hofstede and his team defined six different dimensions and based on their comprehensive studies, they attributed specific scores to each dimension, so they would describe the nature of cultural characteristics within a country [25]:

1. Power distance illustrates the degree to which inequalities in the society are expected and accepted by all, and especially the less powerful members of that society. High power distance index (PDI), with score over 50, means it is a society with a strict hierarchical order, respected without a need for justification. On the other side, power distance index with a score under 50 suggests that people in that country strive to even the distribution of power.

2. Individualism versus collectivism (IDV) labels the relationship between the individuals in a country. If the score attributed to this dimension is over 50, individualism is a dominant culture characteristic of a society, meaning that its members are expected to take care only of themselves and their immediate family. Additionally, typical of individualism are individual's actions and decision making. Opposed to that, scores under 50 stand for collectivist societies, with tightly knit social framework, in which members of a particular group look after each other in exchange for unquestioning loyalty. Individuals usually do not undertake decisions and actions on their own.

3. Dimension also differentiating countries regarding culture is masculinity or for some femininity (MAS). If the index score is above 50, it is a case of a masculine society characterized by achievement, heroism, assertiveness and preference of material rewards for success. Contrary to masculine societies, there are also feminine societies, whose MAS index is under 50. Members of such societies prefer cooperation, modesty and caring for the weak. Quality of life is highly valued in feminine countries.

4. Uncertainty avoidance index (UAI) expresses the degree to which the members of a society feel uncomfortable with uncertainty, especially the fact that the future is unknown and insecure. Index scores higher than 50 expose high uncertainty avoidance, which involves avoiding risks and any changes. Members of such countries are mostly intolerant of unconventional behavior and innovative ideas. If the index score is under 50, the country expresses low uncertainty avoidance, causing a more relaxed attitude in which practice counts more than principles and risks are accepted as a norm.

5. Long-term orientation (LTO) versus short-term orientation describes society's attitude toward past, present and future. Long-term orientation countries are detected after index scores above 50. Those countries encourage thrift and efforts in modern education as a way to prepare for the future. On the other hand, index scores lower than 50 reflect short-term orientation societies, whose priority is to honor tradition and norms. Those countries are not prone to societal change.

6. Indulgence versus restraint (IVR) assesses whether people freely accept fulfillment of natural human desires. Countries whose index score is above 50 are indulgent societies which encourage their members to enjoy life and have fun. On contrary, countries whose index is under 50 are restraining societies that suppress enjoyment by imposing strict norms of social behavior.

All GCI and culture dimensions considered in the cross-country investigation are presented in **Table 6**.

Economy	GCI	Culture dimension scores					
		PDI	IDV	MAS	UAI	LTO	IVR
Switzerland	5.8	34	68	70	58	74	66
Singapore	5.7	74	20	48	8	72	46
United States	5.6	40	91	62	46	26	68
Finland	5.5	33	63	26	59	38	57
Germany	5.5	35	67	66	65	83	40
Hong Kong SAR	5.5	68	25	57	29	61	17
Japan	5.5	54	46	95	92	88	42
Netherlands	5.5	38	80	14	53	67	68
Norway	5.4	31	69	8	50	35	55
Sweden	5.4	31	71	5	29	53	78
United Kingdom	5.4	40	91	62	46	26	68
Canada	5.3	39	80	52	48	36	68
Denmark	5.3	18	74	16	23	35	70
New Zealand	5.3	22	79	58	49	33	75
Qatar	5.3	80	38	53	68	23	34
Belgium	5.2	65	75	54	94	82	57
Luxembourg	5.2	40	60	50	70	64	56
Malaysia	5.2	100	26	50	36	41	57
United Arab Emirates	5.2	80	38	53	68	23	34
Australia	5.1	38	90	61	51	21	71
Austria	5.1	11	55	79	70	60	63
France	5.1	68	71	43	86	63	48
Ireland	5.1	28	70	68	35	24	65
Korea, Rep.	5.0	60	18	39	85	100	29
China	4.9	80	20	66	30	87	24
Czech Rep.	4.7	57	58	57	74	70	29

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Economy	GCI	Culture dimension scores					
		PDI	IDV	MAS	UAI	LTO	IVR
Estonia	4.7	40	60	30	60	82	16
Chile	4.6	63	23	28	86	31	68
Spain	4.6	57	51	42	86	48	44
Thailand	4.6	64	20	34	64	32	45
Indonesia	4.5	78	14	46	48	62	38
Italy	4.5	50	76	70	75	61	30
Latvia	4.5	44	70	9	63	69	13
Lithuania	4.5	42	60	19	65	82	16
Poland	4.5	68	60	64	93	38	29
Portugal	4.5	63	27	31	99	28	33
Malta	4.4	56	59	47	96	47	66
Philippines	4.4	94	32	64	44	27	42
Russian Federation	4.4	93	39	36	95	81	20
South Africa	4.4	49	65	63	49	34	63
Turkey	4.4	66	37	45	85	46	49
Bulgaria	4.3	70	30	40	85	69	16
Colombia	4.3	67	13	64	80	13	83
India	4.3	77	48	56	40	51	26
Mexico	4.3	81	30	69	82	24	97
Romania	4.3	90	30	42	90	52	20
Slovenia	4.3	71	27	19	88	49	48
Vietnam	4.3	70	20	40	30	57	35
Hungary	4.2	46	80	88	82	58	31
Morocco	4.2	70	46	53	68	14	25
Peru	4.2	64	16	42	87	25	46
Slovak Republic	4.2	100	52	100	51	77	28
Brazil	4.1	69	38	49	76	44	59
Croatia	4.1	73	33	40	80	58	33
Iran, Islamic Rep.	4.1	58	41	43	59	14	40
Uruguay	4.1	61	36	38	98	26	53
Greece	4.0	60	35	57	100	45	50
El Salvador	3.9	66	19	40	94	20	89
Serbia	3.9	86	25	43	92	52	28

Economy	GCI	Culture dimension scores					
		PDI	IDV	MAS	UAI	LTO	IVR
Trinidad and Tobago	3.9	47	16	58	55	13	80
Argentina	3.8	49	46	56	86	20	62
Bangladesh	3.8	80	20	55	60	47	20
Pakistan	3.4	55	14	50	70	50	0
Venezuela	3.3	81	12	73	76	16	100

Table 6. Global competitiveness index and national culture dimensions' scores of selected countries [24].

It is evident from **Table 6** that selected countries differ both in terms of competitiveness and cultural characteristics. Different statistical methods were used to perceive their relationship.

Bivariate correlations showed that competitiveness has a negative correlation with power distance index, masculinity and uncertainty avoidance index, respectively. This could imply lower competitiveness as in case of Croatia. Other culture dimensions showed a positive correlation with competitiveness. However, due to multidimensional nature of national culture, the overall effect of national culture to competitiveness was assessed by using ordinary least squares regression analysis including all six culture variables simultaneously. Additionally, beside GCI and culture dimensions' scores, GDP per capita was included into the regression model in order to control economic development. It turned out that the created model had a high predicting value, since it explained 74% of variability ($R^2 = 0.738$) [24].

In such a model, only two culture dimensions remained statistically significant predictors of competitiveness: uncertainty avoidance with a negative sign and long-term versus short-term orientation with a positive association [24]. Clearly, in modern times, characterized by the globally accelerating pace of change, individuals must accept risk as the norm. Otherwise, as in the case of Croatia, high UAI score undermines the national competitiveness level. Yet, the increase of long-term orientation index improves national competitiveness.

Such findings can be used by policy makers in order to improve national competitiveness, but are interesting also in terms of business level discussion, since connection of macroeconomic competitiveness with company level competitiveness seems to be straightforward and factors enhancing national competitiveness are very likely to encourage companies' competitiveness. A great authority on competitiveness Michael Porter said long ago that it was the firms, not nations, which competed in international markets [41], and his opinion is still appreciated [39]. Such opinion suggests that national competitiveness can be considered as the aggregation of competitiveness of all businesses operating in a country, meaning that a country is competitive when its companies are competitive. Therefore, it is possible to extrapolate the above presented findings to the business level.

6. Conclusions

Owing to its status of a transitional country, and especially after becoming a full member of the EU, importance of competitiveness of the overall economy has definitely been the most

important strategic question in Croatia. Especially the competitiveness of the most important economy segments, like construction industry, is being emphasized.

At the same time, competitiveness is determined by various factors. The studies presented in this chapter assume that many of these are people driven, thus justifying exploring the relation of competitiveness with organizational culture and the need for learning about organizational culture in more detail.

Not just that construction industry is an important economy segment, but characteristics of organizational culture in construction industry significantly differ from culture features of other industries [12]:

- there is no common trend between occupational levels;
- there is a lack of communication between different occupational levels;
- increased use of subcontractors makes the situation more difficult because the higher levels are likely to be the employees of the main contractor, whereas the lower levels are likely to be the employees of subcontractors;
- distant locations have led to a situation that construction companies usually have at least two cultural identities: the corporate or "head office"-based culture and a distinctive, separate project culture associated with each unique construction project;
- there are some cultural differences among the main stakeholders involved in a project, especially between designers and contractors.

Knowing that, and appreciating the fact of substantial differences in national cultures, the necessity for research of construction industry's organizational culture peculiarities in specific national context is imposed. This chapter presents results of a comprehensive case study regarding organizational culture of Croatian construction industry and its influence on competitiveness.

It has been stated that the currently dominant organizational culture of the tested sample is hierarchy, although other culture types are also present in some subcategories of construction industry. Different behavior resulting from different culture profiles could by all means develop miscommunication conflicts while working together in projects, so organizational culture needs to be managed carefully.

Beside knowledge about the current culture profile, management of organizational culture as a part of efficient organizational change management, surely needs the insight into the preferred organizational culture too. Presented results showed that the clan is predominantly preferred culture type in almost all construction companies, as well as among the engineers-to-be.

The greatest value of this chapter for practitioners is the idea that gradual implementation of the clan culture in construction companies in Croatia would:

- meet employees' expectations, thus making them more satisfied and successful workers,
- improve the communication among different stakeholders working together,
- have a positive effect on organizational learning, innovativeness and competitiveness, since the study [26] reporting on such effects of adhocracy culture, identified that clan culture type might have the same effect

All of these have a potential of easing the achievement of strategic goals in the long run and increasing both the company and industry level competitiveness. Since it was proven that human commitment mediates relationship between organizational culture and organizational performance [42], these specific findings should be seen as a motive for conscious action of managers, toward culture change which would lead to performance improvement.

As for the scholars, presented findings generate value through building on the body of knowledge regarding culture and competitiveness issues in specific national contexts. Although applied statistical methods confirmed the reliability of results, the main limitation of the case study presented in this chapter is definitely the size of tested samples. Therefore, further research should analyze additional subjects too. It might be interesting also to measure company level competitiveness directly and relate it to determined organizational culture.

Starting from the initially defined purpose, over the discussion of results to the conclusion, this chapter tries to provide an outline of the current and preferred culture profile characteristics of the Croatian construction industry together with their competitiveness implications.

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Chapter 6

Reflex-Adaptive Organizational Structure in the Implementation of Large-Scale Projects

Andrey Morozenko

Additional information is available at the end of the chapter

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Abstract

This work reflects the results of research on the study and creation of a new class of highly effective organizational structures of the reflex-adaptive type in the context of the implementation of a large-scale project. The research is based on the information paradigm of organizational structures' formation. From this perspective, any manufacturing company is represented as a system that converts resources into a final product on the basis of an information imperative. The structure of the production management and executive subsystems is selected. The composition and functions of the subsystems and the formation of system elements' feedbacks are described. Also, the development methodology of the management and executive subsystems is presented along with synthesis of these subsystems into the cybernetic type organizational structure. The chapter focuses on developing enterprise substructure of the executive subsystem, which is called the project matrix, which factually is its network model. Its properties, and transformation rules are described, and the algorithm of its formation is presented. The system properties of the organizational structure are examined in detail. The methodology for forming the reflex-adaptive organizational structure is presented. Particular attention is paid to the quantitative estimation of flexibility and stableness of organizational structures.

Keywords: reflex-adaptive organizational structure, cybernetic model of organizational system, synthesis of organizational structures, logical and functional connection, informational flexibility index, project matrix, life cycle of the project

1. Introduction

Current trends in the development of world production are characterized by socioeconomic instability, a significant turbulence in the services market which requires from organizations

implementing large-scale projects to use additional competitive advantages that ensure their reliable and sustainable development. The complex of measures to improve the efficiency of enterprises includes various areas: the introduction of new materials and technologies, the use of productive machines and mechanisms, raising the technical level of personnel, etc. However, the modern science of management emphasizes the possibilities of the organizational structure, since its properties have a decisive influence on the efficiency of any company's activity.

The scientific substantiation and development of the scientific and methodological foundations of the formation of the enterprises' reflex-adaptive organizational structure with specified qualities of flexibility, stableness, and safety, their introduction into production practice represent an actual problem in modern conditions, the solution of which will significantly increase the efficiency of the enterprise's functioning.

The aim of the research, the results of which are reflected in this chapter, is to study the properties of the reflex-adaptive structure and to determine the qualities of its main components as system elements in the implementation of large-scale projects.

The study also aimed to find ways of forming the organizational structure of a large-scale project fully meeting the requirements of the project's life cycle. The formulated problem is considered on the example of investment and construction project in which the stages and phases of the life cycle are clearly expressed and the necessary transformation of the organizational structure is well traced.

The scientific community has long and fruitfully engaged in researching various aspects of organizational structures, their effectiveness in various conditions of functioning, researching the internal environment [1–3]. The level of problem's research related to the formation of highly effective organizational structures for large-scale projects is determined by the scientific and practical experience of the scientific school of the Moscow State University of Civil Engineering [4–8], where this problem has been comprehensively studied for many years by the university's scientists in cooperation with the world's leading specialists in this field, and research materials are presented at scientific conferences and in the scientific press.

The result of the research was the concept of an organizational matrix for the large-scale construction project which is a network model of the stages of the project's life cycle.

On modern views, progress of highly effective organizational systems is based on the concept of information approach to studying and forming complex engineering facility's organizational structure. Based upon the idea of reflex-adaptive systems of investment and construction project (ICP), we will consider the features of this structure.

2. Cybernetic model of ICP organizational structure

The main thing that distinguishes highly effective organizational systems is a pronounced structure which manifests itself as an ICP having a number of relatively stand-alone production

units that execute typical for them piece of work. These units appear as backbone elements of the organizational structure and in the technological conception—functional blocks.

It is relevant to make the following observation. In all research papers that observe reflex-adaptive organizational structures, we have always referred to its belonging with the investment and construction project. This is not quite true. We have chosen the investment and construction project as a vivid example of the full-cycle construction: from the idea to the commissioning for the customer. Of course, the ideas explicated in the reflex-adaptive paradigm can be applied at any stage of the construction, but the greatest effect will be obtained by using a reflex-adaptive organizational structure when developing full-life cycle projects.

So, the full-cycle (or a turn-key project) construction's organizational structure is a set of functional blocks united by a sole production program that manages their activities, synchronizes their work, and controls the processing of program tasks (**Figure 1**).

Thus, in the organizational structure of the project, two subsystems are separated out: management and executive. The executive system includes functional production blocks.

Such production links organization within the enterprise allowing it to solve the problems of gaining such advantages as flexibility, stableness, safety, and resistance successfully as a participant of relations. Let us briefly consider the ways of solving these problems from the standpoint of the information imperative.

A general notion of enterprise flexibility is the ability to conform to changing market requirements for produced goods. The information paradigm allows eluding inaccuracies and solely qualitative characteristics of an important property of industrial production. We can identify the backbone of this quality and numerically estimate its significance using the pragmatic information concept [9], which was introduced in the middle of the last century by Russian scientist A.A. Kharkevich. If the analysis of goods realization reveals its negative trend, considering that its causes are determined, then we can interpret this situation as a production program deviation from the target values. Further based on measures adoption, we stabilize or increase realization volumes. This adjustment process to the changing market can be expressed as:

$$I = \log P_1 - \log P_0 - \log \frac{P_1}{P_0} \tag{1}$$

where I is the pragmatic information, P_0 is the probability of achieving the goal before receiving information, and P_1 is the probability of achieving the goal after receiving information.

In other words, based on the obtained information of goods market functioning changes, managing decisions are elaborated that parry the detrimental effect of this developments. The management system of the reflective-adaptive organizational structure is designed precisely to analyze changes of the external and internal environments of the enterprise as a system. On this basis, it is necessary to develop managing solutions.

A similar approach is possible when forming the quality of the system's reliability. In the information view, system reliability is the probability of its efficiency in case of internal environment system's changes. System efficiency condition is the permanence of its internal environment or its restoration from adverse effects on the system.

$$\frac{dI}{dt} = R \tag{2}$$

where I is the information about the state of the internal environment and R is the resource that is necessary in parrying the changes in the internal environment.

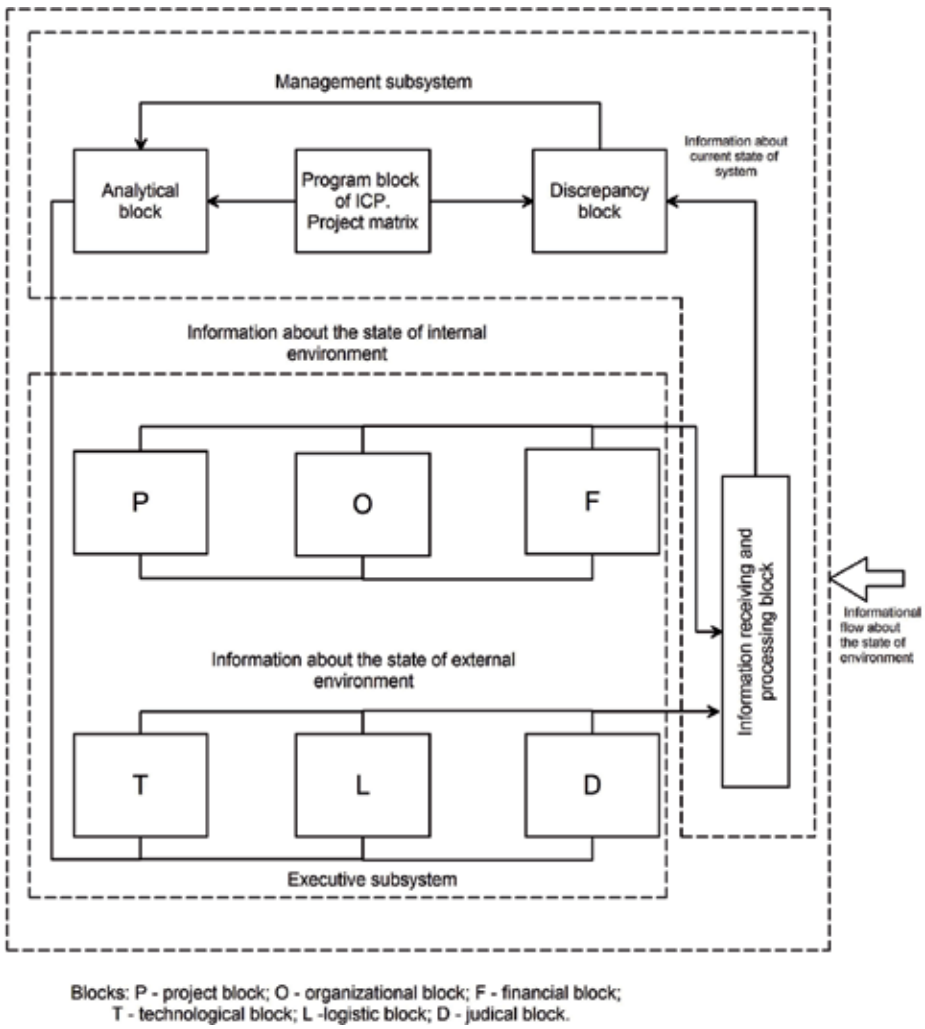

Figure 1. Cybernetic model of reflex-adaptive organizational structure. Source: own.

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Task of the internal environment permanence assurance is also guaranteed by the organization's management system. It produces managing decisions, and if the external resource is involved, then the decision is strategic for the system; on the contrary, if the resource is redistributed within the system, then the solution has a tactical level. The decision is operational if the resource was not involved.

Underneath the simple condition of enterprise work reliability, there are big problems of permanence assurance of internal environment characteristics. Permanent work with members of the work collective is crucial considering that any manufacturing enterprise is a socioeconomic entity. The issues of increasing work culture level, organizational culture, and organizational climate are the subject of executive's constant attention seeing that they are important and directly influence the enterprise efficiency.

Man is the source of productive labor. His educational and cultural level, commitment to self-realization, and inner self-esteem become the force that moves man to perfection, the active realization of his views and needs. And first of all, this is reflected in social work.

If the manager of any level wants his team to work successfully, he should see in his subordinates not soulless operators, but interested supporters, implementers of given tasks.

This is achieved by a wide armory of educational work, by whole system of moral and material stimulations, the creation of hospitable companionship in the team. All these relationships and activities strengthening complex of the personnel create a specific atmosphere of work, which is called the organizational climate [3]. Organizational climate, which is cultivated by the leaders of the organization, generates the organizational culture that is carried by all members of the collective.

In all our considerations about the reflex-adaptive organizational structure, we mean organizations with a high production and corporate culture.

3. Disadvantages in the established practice of implementing large-scale projects

In case of production and technological problems, successful solution, as well as increasing the improvement of design and engineering quality, the bottleneck in the complex engineering facilities construction is the problem of managing solutions' control and rational envisioning [10].

A rational solution is to minimize the use of resources while the system performs its target function. Let us briefly explain this definition. The intention of any production system is the achievement of certain state parameters, which are called the goal and appear as the result of the target achieving process. During the implementation of the target function, the system is affected by internal and external influences that angle the theoretical path of the system in the phase field of variables and do not allow the system to achieve target parameters. The

ideology of any management system is to parry the negative results of external and internal influences in order to restore the desired trajectory of system's movement toward the target. The solution to this problem develops a mechanism that is capable of executing the decision-making algorithm, which is shown in **Figure 2**.

The nature and structure of the construction work determine the organization structure of the facility. A special feature of the modern construction process organization is the change in the composition of the functional blocks and their interconnection that depends on the specific phase of the project's life cycle. Let us illustrate this with the example from scientific research [9].

The interaction of the functional blocks in the design phase is described by the orgraph "a," while during the preparation for construction and installation works (CIW)—by the orgraph "b," and the actual construction—by the orgraph "c" (**Figure 3**).

We have already drawn attention to the fact that the nature and features of the planned work determine the construction process' organization structure. In fact, the forming of the construction project's organizational structure begins with the predesign or design works on the formation of design specifications and estimates. If works are carried out in the construction's full-life cycle, then this should be preceded by the structure formation of the "zero" implementation phase, when the project operates not with the composition of the construction works execution but with the development of target characteristics and project indicators.

Currently, the implementation of large-scale construction projects involves a great number of organizations. However, the design documentation does not define the project organizational architecture, let alone the mutual interaction during the project implementation. The only thing that can be noted is that modern ICP requires the obligatory presence of the construction management plan (CMP) and the construction execution plan (CEP) in the list of project documentation. However none of them contain any directions for creation of any organizational structure. It is assumed that it exists by default. Indeed, in the modern project implementation practice, the project organizational structure is not specifically formed, but created on the basis of existing arrangements of past experience and all that irrelevant to effective organizational structures.

In addition, CMP focuses on the technological aspects of construction installation works. Its structure includes the layout of construction site, the manpower, and machinery requirements computation, progress schedule, and so on. All components of the organizational design are presented in CMP, but it describes only one phase of the life cycle—construction and installation works (CIW), and even during them, there are no clear mutual interactions between contractors and their units on construction site of facility. To some extent, this can be tolerated in case of building a simple standard construction, where the only one phase is realized: construction and installation works, where the functions of the developer are delegated to the general contractor by the customer, who, in fact, forms the organizational structure according to its own understanding and takes into account its own interests.

To adopt such practice in a large-scale construction project even within a single phase of construction and installation works means to accept all confusion, irresponsibility, vanity, and system mistakes that will lead to time-consuming delays and can significantly increase construction cost.

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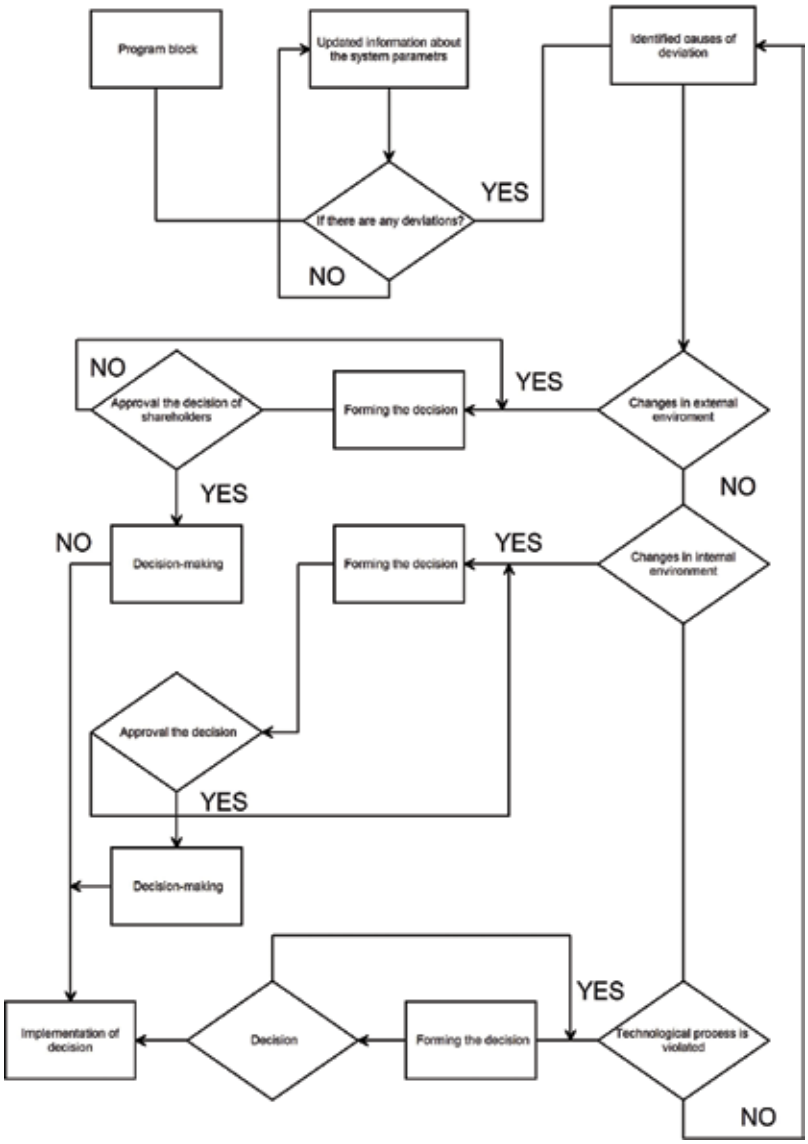

Figure 2. Decision-making algorithm in reflex-adaptive organizational structure. Source: own.

For creation of a highly effective organizational structure of the project, it is absolutely necessary to consider all the phases of the project life cycle and the full range of work that needs to be done to create the project product.

An example of the implementation of the complex engineering turnkey facility construction is indicative. Within it, the project goes through all stages of the life cycle and the question of the organizational structure formation and adaptation is very crucial.

Generally, new projects are implemented in the existing "parent" structure of the company, which implements a large number of projects that are currently in different stages of the life cycle.

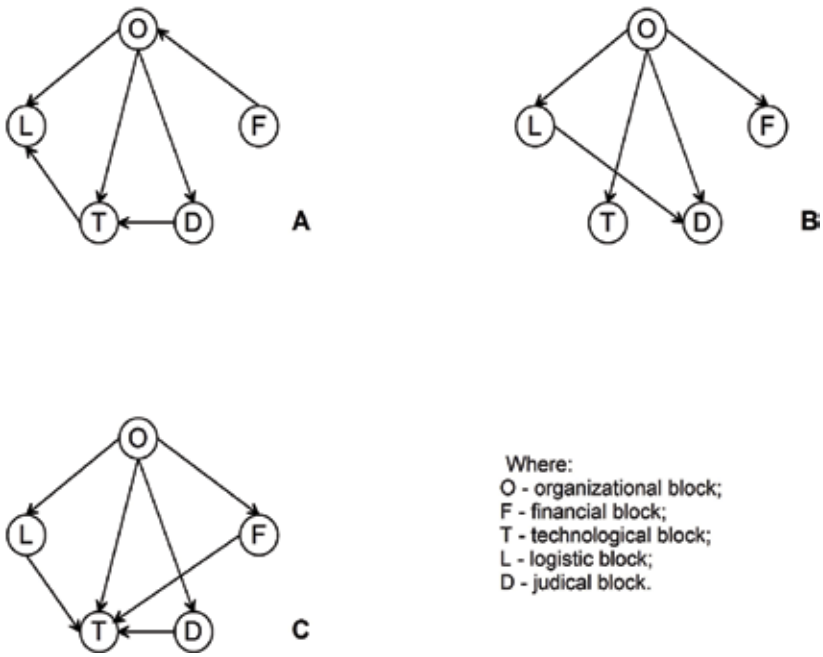

Figure 3. Orgraphs of project's functional blocks at different stages of life cycle. Source: own.

It is not just the process of forming a static organizational structure that is too complex, but the planning of its transformation process during the projects' progression from stage to stage and maintenance of financial resources and required number of labor and materials.

In organizational structure formation, the main problem of resources availability estimation is modern organizational development of engineering and construction companies.

The work on the staff requirement number estimation and planning is developing, but not intensively enough, because it covers a very narrow range of directions and functional blocks of construction projects. Obviously, for the implementation of construction and installation works along with the commissioning works, there are calculations of labor force requirement that are carried out, also number of project designer is preplanned and calculated but that is all. However, this is not nearly enough for the implementation of a reflex-adaptive organizational structure. Comprehensive approach to the planning is essential, beginning with a detailed elaboration of the work scope that should be performed at each phase, and ending with all types of support for their implementation.

For a large-scale project, especially if there are several of them and they are implemented in parallel, this is a rather topical and complex issue. Experience has proven that it is inefficient and disadvantageous to deal with this issue during the project implementation, neither from the cost and quality terms point of view, nor from obtaining effective experience in the construction projects implementation and management process.

Inattention to the project organizational structure formation and to its management at all stages of the life cycle is a serious omission in achieving goals of the investment and construction project.

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This chapter helps in closing the gap by using the project matrix concept, which is based on the methodology of its formation.

4. Matrix of project key events is the modern paradigm of organizational structure formation

By the term "project matrix," we shall basically mean a scheme of directive planning and management of functional blocks activity that have a form of oriented graph and based on project key events, their structure, and interrelations. The project matrix does not resolve itself to proximity tables of the network orgraph or assembly of Gantt bar charts. The project matrix is an oriented graph, in which the vertices display events in the project life cycle, and the arcs—the logical link of these events and their sequence. The special feature of this orgraph is the lack of resource conditions in achieving certain key events. It is a model of functional blocks' logical links at all stages of the project life cycle that uniquely determine its organizational structure. Essentially, project matrix is a graphical representation of the program, which is implemented by the management system in order to provide the appropriate organizational structure of each phase of the investment and construction project. Construction works range separation into technological and logical components thus allow emphasizing the questions of construction participants' organizational interaction into optimal organizational structure that fully accommodates nature, volumes, and features of the construction.

Properties of the project matrix can include all properties of network models [11]. In our case, the most important are network structures' possibilities of "scaling" and "merging." The matrix can be single- or multilevel depending on the amount project scope. The matrix levels are accordingly correlated with construction management and execution plans. Key matrix events of different levels have identical characteristics and appear as control points through checking the matrix and program compiling correctness.

The matrix is an execution document. It is derived from an order (the employer's or general contractor requirements), coordinated with the executors and approved by project administration. On the basis of the matrix, which has the program status after the approval, low-level documentation is elaborated. This work is transferred by the contractor to the project functional blocks. In our considerations a new concept has emerged—a key event. Let us distinguish it in details. The construction process consists of work actions, which ultimately lead to certain events. For example, work, which is carried out in accordance with the technical documentation for ground excavation, leads to the construction of an unlined canal. The work of a bricklaying crew leads to the fact of creating a building or part of it. This is also an event. And so on. The specification of this process allows us to locate all events that provide project target achievement, which is also regarded as an event. From a manufacturing point of view, an event considered as a completion of some work or part of it, which is defined by technical documentation, leads to a concrete material result. From the system point of view, considering the network model of work organization, the event represents orgraph vertex, which describes works' sequence and interrelations, and, therefore, the structure of this project implementation phase. The main difference of events is the size of incoming connections order. The event with the maximum incoming order will be defined

as a key event. A key event or a series of them completes the project implementation phase or stage, forms a new organizational structure, or alters the previous one into the structure of a new construction phase.

As an example, we consider the formation of a matrix for a single-phase project (**Figure 4**).

This process is much more complicated for projects with a full-life cycle.

The presented flow chart requires some explanation (**Figure 5**). Firstly, let us emphasize again that the design of organizational structure is a similar stage to an object design or its systems. Therefore, a specialist or a group of specialists called system designers should handle this work on the analogy of IT systems with software engineers and system programmers [12]. Organizational structure formation of a large-scale construction requires greater theoretical skills and sufficient practical experience from developers to comprehend construction logic wholly, to separate the technological process properly into operational and logical links and to prepare clear and understandable construction documentation for the executives. Further, it is necessary to clarify that the main support complex in the project matrix formation is not works, but events. The matrix reflects the implementation of events through the execution of certain works. Therefore, all the attention of project designers should be focused on the correct events sequence and their logical relationship. Matrices of the same project can be formed on different scales, but it more effectual to develop a matrix from a large scale to extremely small one with a detail of events' specification.

As you can see, the matrix of ICP key events determines its organizational structure, but does not define logistics, labor movement, volumes, and period of construction. It is necessary to supplement the key events matrix with comprehensive information about requirements for achieving each key event in order to form design and estimate's real directive documents that define a detailed construction program. This task should be solved by system designers

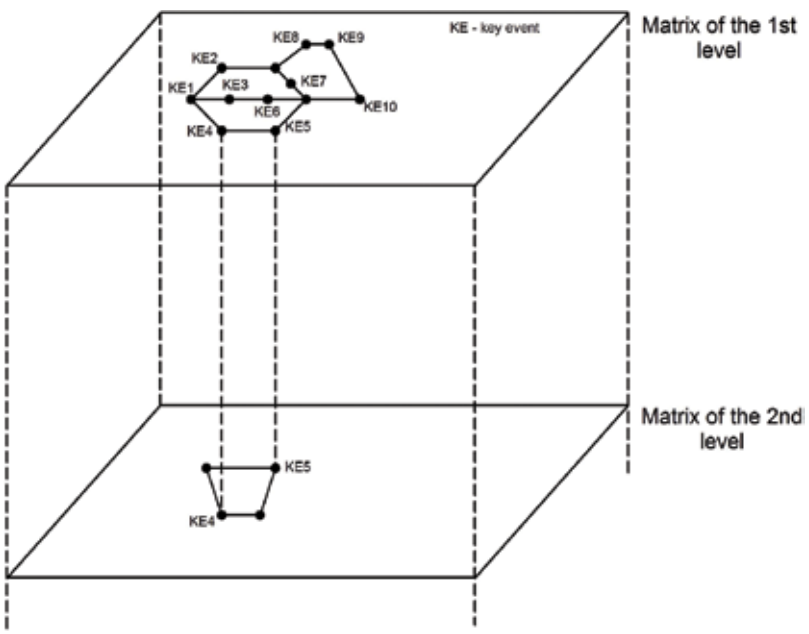

Figure 4. Multilevel matrix of project key events. Source: own.

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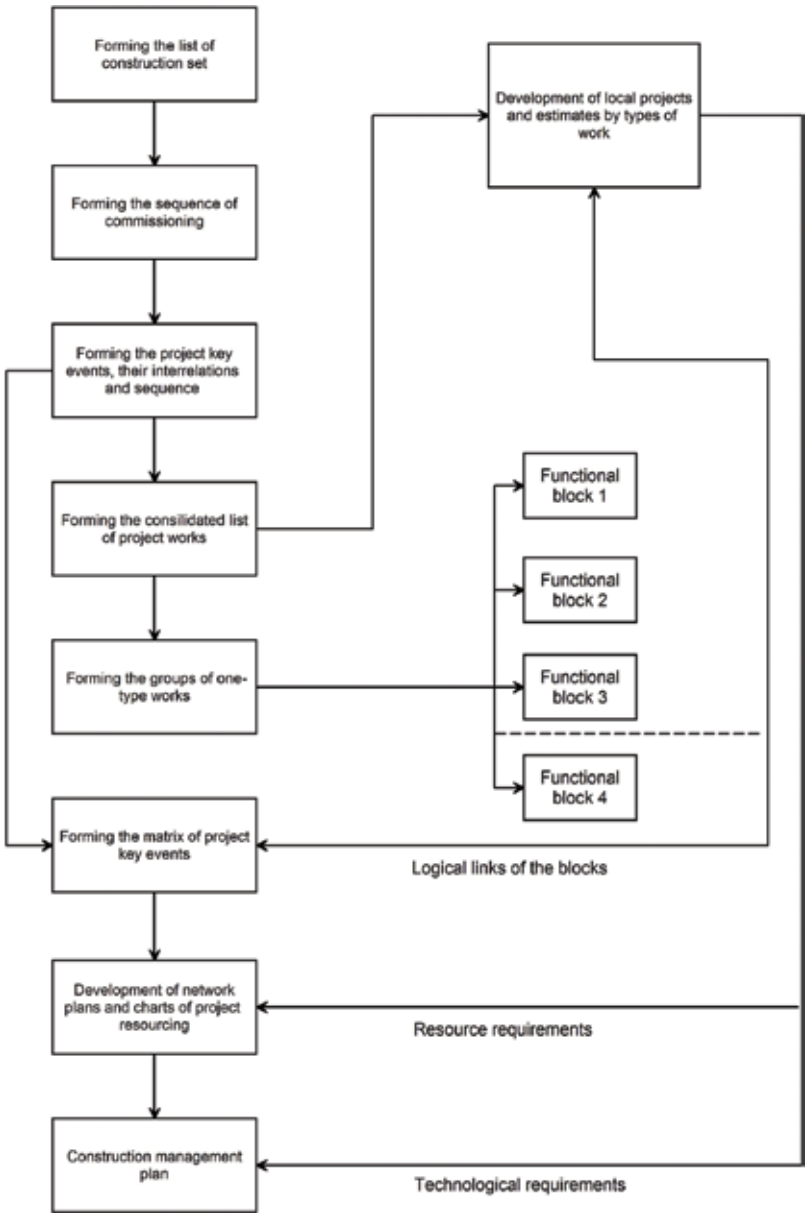

Figure 5. Flow chart of works on formation the matrix of ICP key events. Source: own.

combined with the project functional blocks, i.e., by specialized contracting organizations that should determine each orgraph arc of the "project matrix" by a description of work, which performs between the previous event and the developing one. Work description is carried out according to certain rules that allow operating this information. For that purpose, the operator card is created, which has its own address, where are attributed all types of work, performance periods, list, and amount of resources, that are necessary for work performance. In fact, the entire amount of construction, erection, and finishing works should be divided in elementary operations or by the necessary level of detalization. This is fairly large

amount of design work that requires a certain amount of time. By using visual programming methods, it is possible to speed the work of this stage of documentation development. With these methods, developers do not demand a high qualification of programmers to produce technical documentation. The methodology of ICP key events matrix's actualization process is in considering the matrix as a polygonal network system—an orgraph, where the network vertices are events that determine the state of the project, and the arcs define the conditions for the project transition from one state to another, i.e., they are transition operators. In physical representation, the transition is a work or a set of works, which allows transitioning from one state to another through its implementation. Therefore, the transition operator "ω_n" should contain comprehensive information about the work and the execution conditions. The following form determines this requirement:

$$\omega_n = \sum_{n=1}^{n=m} A_n; \sum_{n=1}^{n=m} R_n; \sum_{n=1}^{n=m} G_n; T_{ct} \tag{3}$$

where A is the work that ensures the achievement of a specific event, R is the resource as a condition of relevant work performance, G is the labor contribution that characterizes each works, and T_{ct} is the critical execution time of transition from one event to another.

From this follows the most important operator property: the transition operator "ω_n" from the event "i" to the event "j" equals sum of any decomposition level operators in the same limits, i.e.,

$$\omega_n = \sum_{n=i}^{n=j} \omega_n \tag{4}$$

This property allows switching from low-level operators to high-level ones, i.e., performing operators' connection.

A few words about the visualization problem of the large-scale construction network model. There are limitations of man's abilities in perception of a large information amount. It is even more difficult to identify a trend or its characteristic change from the general data flow quickly enough. The main thing is lost in a large flow of information. By traditional assumption of work construction and executive structures in the form of linear or network charts, they have significant limitations of detalization level of the construction processes. If we increase the chart scale, it becomes unreadable due to the large number of particular elements. The solution of this problem is in applying highly developed visualization informational systems. The introduced construction execution plan can easily be transformed into a quasialgebroidal form, which is easily acceptive by computer technology. By designating corresponding events in a certain way, it is always possible to withdraw from the computer's memory any phase in various detalization levels as an addition to the main, enlarged project matrix.

Thus, it is possible to increase productivity and construction reliability by using visual programming and the methodology of forming the ICP organizational structures on basis of key events matrix and automated calculation method appliance.

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5. Conclusions and recommendations

Limiting the factors under the conditions of large-scale construction, there are unresolved issues of creating effective construction organizational structures that retard economic and financial progress. Current practice of large-scale construction projects is lacking the comprehension of organizational structure formation process, which is goal-oriented on construction at minimum expense. The absence of a convenient model of construction organizational structure does not provide design's variability of main contractors' interaction on the construction site, what makes processes of production organization uncontrolled.

Developers of high-efficient organizational structures focus their attention on cybernetic type of the reflex-adaptive organizational structure, which consists of management and executive subsystems that are covered with feedback. This structure is able of responding to changes in the external and internal environments and can form an optimal organizational structure for each stage of construction.

An effective method of forming the construction project's organizational structure is the method of production process analysis and synthesis. According to this method, construction process is divided into organizational and technological components, what allows to develop organizational structure from production and logical connections between events, works, and executors. Accordingly, this structure is most relevant to the current phase of the large-scale construction project.

The investment and construction project matrix is a network model of production and logical links array of events, which implementation leads to the achievement of construction's target goal. In order to lead to certain events, the matrix defines organizational and production relations of project executors and the sequence of work performance. The project matrix can be represented both in polygonal form of an orgraph, or in a quasialgebroidal notation. The orgraph of the project matrix defines the events by its vertices, and goal-achieving works by its arcs. The digitized vertices and arcs of the matrix orgraph are the reference point or the ICP implementation program.

Specification and scaling of the project matrix is carried out on the basis of the "key event" concept of the project. This reflects on all network schemes, regardless of the model's scale and determines the beginning or completion of certain construction stages. The highest level of the matrix consists only of key events.

In order to form a highly effective ICP organizational structure, it is necessary to execute a complex of works on the system design of the project's organizational structure as one of the stages of the construction documentation general development.

Lack of system design specialists requires the measures in training of system designers of construction facilities' organizational structures. In addition, construction managers of various levels are also required to be trained. This future specialists need to gain basic IT knowledge and acquire foundational skills in programming.

The development strategy of construction management processes requires mandatory infusion of computer information processing, decision-making automation, the creation and implementation of new digital information display systems, and the widespread use of digital media for construction documentation. The solution of these problems opens a new direction for the construction complex development—that is the construction informatization.

It is advisable to conduct further research on the use of a reflex-adaptive organizational structure in the implementation of large-scale projects toward financial and economic efficiency. In view of certain additional costs for the development of a detailed model for the implementation of a construction project, it is necessary to determine the minimum volume of construction production in monetary terms at which the costs of organizational design will be an acceptable value.

It is also desirable to consider the unification of requirements for organizational design, the creation of data banks for standard operations and construction products, the definition of the nomenclature of technical documentation for organizational design.

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Chapter 7

Leadership Competencies Affecting Projects in Organization

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Additional information is available at the end of the chapter

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Abstract

Leadership and organizational culture are linked to project performance. The culture of the organization exerts an influence on the leader and shapes the actions and competencies of the leader with the passage of time. For last few decades, project management has extensively been involved in management of projects but still projects are not guaranteed to be successful in various organizational environments. There are certain factors affecting management of projects in different situations where the competence of project leadership is one of the key factors. This chapter employed different keywords and methods for selection of articles synthesizing findings and research gaps of earlier studies. This chapter offers certain limitations and future directions for researchers. The outcomes of this chapter are expected to advance the body of knowledge and help the practitioners in the field of leadership and project management.

Keywords: leadership, competencies, project manager, organizational culture

1. Introduction

Early management and leadership studies viewed the organization as a gateway to leadership [1] and in many cases both the terms had been used interchangeably [2, 3]. However, the contemporary literature considers the two concepts different from each other, though with some overlapping boundaries. Leadership is a social relationship where people allow individuals to influence toward organizational change. Leaders have a vision that they can communicate and execute by guiding people into a positive relationship enabling change and growth in organizations. Leadership is process to achieve a common goal where an individual influences a group of individuals. Leadership encourages discussion and debate to guide the

individuals in a working environment whereas management involves directing people to get from one point to another, using a known set of competencies [4]. The competence of project manager as leader has been recognized in literature [5] and one of the key reasons for failure of project is lack of leadership competence [6].

Competence is a quality or state of ability, effectiveness, sufficiency, or success [7]. However, a disagreement exists over the spellings of the term and two words, competency and competence, which are used with slightly different notion [8]. Competency is related to effective or superior performance in a job which is an underlying characteristic of an individual [9, 10]. Competencies are expressed as the behaviors that an individual needs to demonstrate to perform a job in different organization culture [10, 11]. On the other hand, competences are related to activities in an occupation which are expressed as minimum standards of competent performance [11]. These two concepts can be taken as complementary [8].

The purpose of this chapter is to explore earlier studies on project manager's leadership competencies to synthesize their key findings and future directions for the researchers. A few literature review studies focused on identifying personality and leadership style of the project manager as a success factor [12] and exploring how performance of leadership in project management determines project outcomes [3]. This chapter was guided by the following research questions: (a) What are key leadership competencies explored in literature? (b) What are the key findings of studies on project manager's leadership competencies? and (c) What are future directions suggested by earlier research studies?

2. Literature review

2.1. Leadership competencies

The project manager's role has changed from directing or managing to leading and therefore, a project manager needs to have requisite leadership competencies and skills [57]. Project management studies have highlighted the significance of project manager's leadership competencies in achieving project success [13, 58] and therefore, the researcher has identified a number of leadership competencies required for a project manager. Leadership competencies in project management literature have been classified into three main categories including intellectual competencies (IQ), managerial competencies and emotional competencies by different researchers [12, 14–17].

2.1.1. Intellectual competencies (IQ)

The intellectual competencies refer to intelligence, ability of understanding the work, performing problem solving and cognitive activities such as connecting and applying relevant concepts, systematic thinking and recognizing patterns [15, 17]. Accordingly, three types of intellectual competencies identified in the literature [12, 18], are presented in **Table 1**.

2.1.2. Managerial competencies

Managerial competencies of a project manager play a crucial role in projects and these require a project leader to be able to provide consistent motivation to his or her team, encouraging

Critical analysis and judgment	It relates to collection of appropriate information from an array of resources, investigation of facts, determining merits and demerits, concrete assessment and decision making and understanding the effects of assumptions made [19–21].
Vision and imagination	This refers to innovation and imagination of a leader who has a clear vision of future course, prioritizes work accordingly and anticipates the implications of changes on implementation of his or her vision [19–21].
Strategic perspective	It involves a broader view of issues and their implications in which a leader investigates a broader spectrum of relationships, strikes a balance between near-term and long-term considerations, discovers opportunities and threats, pays attention to requirements of stakeholders and realizes the effects of external factors [19–21].

Source: developed based on [19–21].

Table 1. Summary on types of intellectual competencies.

Resource management	This relates to planning ahead, organizing the resources and coordinating them efficiently and effectively. Moreover, it also involves establishing clear objectives; converting long-term goals into action plans; monitoring and evaluating staff's work regularly and effectively; and giving honest feedback.
Engaging communication	It requires a leader to be a lively and enthusiastic communicator who engages others and wins support. It also includes clear communication of instructions and vision to staff. Further, these communications are tailored to the audience's interests and focus. In addition, leader's communication style inspires staff and audiences and conveys approachability and accessibility.
Empowering	Empowering means giving the staff autonomy and encouraging them to take on personally challenging and demanding tasks. It encourages them to solve problems; produce innovative ideas and proposals; and develop their broader vision. Empowering also means encouraging a critical faculty and a broad perspective, as well as encouraging the challenging of existing practices, assumptions and policies.
Developing	It requires a leader to believe that others have potential to take on ever more-demanding tasks and roles, encourages them to do so. Therefore, a leader develops their competencies; invests time and effort in coaching them so they contribute effectively and develop themselves; and identifies new tasks and roles to develop them. The leader believes that critical feedback and challenge are important and ensures direct reports have adequate support.
Achieving	A leader must involve significant risks as opportunity to get advantage and make decision. The core business issues and their likely impact on success of any project or organization are considered by the leader while making futuristic decisions. The leaders prefer to choose such activities that contribute toward the organization and its performance. Further, a leader shows an unwavering determination to achieve objectives and implement decisions.

Source: developed based on [19–21].

Table 2. Summary on types of managerial competencies.

them to attain excellence and quality in their performance, looking for ways to improve production and standards. According to the literature, managerial competencies have dimensions which are presented in **Table 2**.

2.1.3. Emotional competencies

The person's ability to perceive, identify and manage his or her emotions as well as understanding and regulating those of others are the basis for the emotional competencies. A certain level

of emotional intelligence is compulsory to learn these competencies. According to Trivellas [16], successful project managers have higher levels of emotional intelligence as compared to their counterparts. Emotional competencies have seven dimensions which are presented in **Table 3**.

2.2. Theories of leadership

A leader has cognitive (managerial) and cathectic (emotional and motivational) functions. Aristotle's view was that a leader must build relationships with the team, advocate a moral vision, and induce by logic to manage actions. The concept of leadership has evolved over last 80 years and resulted in six leadership theories which are presented in **Table 4**.

Competency theory is a blend of all earlier theories as it encompasses emotional intelligence, behaviors and traits in terms of competencies [8, 22]. Therefore, leadership Competencies are the skill set, knowledge and behavior through which different organizations assess and develop the leader within the organization. The research on leadership gave rise to

Self-awareness	Self awareness is about the leader's own capability and feelings which helps to recognize and manage activities in a way that one experience that one can manage. It includes awareness of one's own feelings and the capability to recognize and manage these in a way that one feels that one can control. Therefore, leader requires a certain level of capability of self-belief to control one's emotion and manage their activities to efficiently perform in working environment.
Emotional resilience	Emotional resilience requires a leader to perform consistently in a range of situations under pressure and adapts behavior appropriately. Moreover, he or she balances the needs of the situation and task with the needs and concerns of the individuals involved. Further, a leader focuses on strategy to cope with personal challenges or criticism to achieve better results.
Intuitiveness	Intuitiveness is a capability of leaders to develop their decision making and effective implementation of decisions. The decisions made by intuitiveness leaders should be clear even though presented with ambiguous or incomplete information.
Interpersonal sensitivity	Leaders with interpersonal sensitivity should be aware of the perceptions of others to make decisions and propose solutions. This competency demands that a leader should be aware of others achievements and commitments to actions or decisions. The leaders should actively listen for their constructive inputs and criticism.
Influence	The leaders encourage views of others based on understanding of their position and stature. The leaders appreciate to listen to the perspective of others and provide rational for change in organization.
Motivation	Motivation competency pertains to having drive and energy to achieve clear results and make an impact. It requires a leader to balance short- and long-term goals with a capability to pursue demanding goals in the face of rejection or questioning.
Conscientiousness	Leaders having conscientiousness competencies exhibit personal commitment, ethical consideration, and solution to business issues. The leaders encourage others to support the chosen directions and display commitment for providing course of action to manage challenges.

Source: developed based on [19–21].

Table 3. Summary on types of emotional competencies.

Trait theories	These theories remained famous until 1940s which said that successful leaders possessed similar traits and assumed that leaders are born not made.
Behavioral theories	Behavioral theories were prominent from 1940s to 1960 and said that leaders adopted some specific behaviors and thus leaders could be made.
Contingency theories	These theories remained center of focus during 1960s and 1970s and suggested that success of a leader was dependent on situation.
Visionary or charismatic theories	The visionary school of thought was famous from 1980s to 1990s and these theories were based on the studies of effective business leaders who introduced a change in their organization.
Emotional intelligence theories	These were famous during late 1990s and these suggested that it was the emotional intelligence that had more effect on leader's personal performance as well as that of his or her team, rather than leader's intellectual capability.
Competency theories	These theories gained popularity during late 1990s and these focused on the competencies of successful leaders rather than their traits, as was the case of *the trait theories*, and therefore these theories suggested that one could learn the competencies [13] and thus leaders could be made [12, 14, 15, 17].

Source: developed by the author based on review of literature.

Table 4. Summary on theories of leadership.

six leadership theories that evolved over a period of the last 80 years [12, 14, 15]. These theories have been adopted in all aspects of management, including organizational management and project management, with necessary adjustments specific to these areas. The most recent of these theories is the competency theory of leadership that gained popularity during late 1990s.

2.3. Classification of leadership competencies

The use of different tools and techniques has not helped in reducing the failure rate in projects. This situation has allowed the focus to shift from technology, techniques and hard skills to soft skills and leadership as a solution to the problem of project failure. Leadership competencies involved in effective management of projects can be classified at four different levels.

2.3.1. Managing self

Project managers tend to have multiple skills and competencies to more competitive and prominent because traditional managerial skills are not enough for effective business in functional or matrix based organization. Such skills and competencies are essential for project managers to perform activities effectively because a project manager's job is more demanding and tend to deal with uncertain circumstances. Classification of competencies at level of managing self is presented in **Table 5**.

Project managers act as a role model for the team members who establish an environment of honesty and provide opportunity for continuous learning. Project managers should possess good interpersonal skills and the need to focus on developing skills of the people involved in the project. In project environment, a leader provides flexible environment and encourage

Integrity/honesty	A leader behaves in an honest, fair, and ethical manner and shows consistency in words and actions also exhibit high standards of ethics.
Interpersonal skills	These skills require a leader to treat others with courtesy, sensitivity, and respect. He or she considers and responds appropriately to the needs and feelings of different people in different situations.
Continual learning	Continual learning refers to assessing and recognizing own strengths and weaknesses and pursuing self-development.
Resilience	It refers to dealing effectively with pressure; remaining optimistic and persistent, even under adversity and recovering quickly from setback.
Oral communication	Leader makes clear and convincing oral presentations, listens effectively and clarifies information as needed.
Written communication	A leader writes in a clear, concise, organized, and convincing manner for the intended audience.
Flexibility	Flexibility means a leader is open to change and new information and rapidly adapts to new information, changing conditions, or unexpected obstacles.
Problem solving	This competency ensures that a leader identifies and analyzes problems; weighs relevance and accuracy of information; generates and evaluates alternative solutions; and makes recommendations.

Source: developed by the author based on review of literature.

Table 5. Classification of competencies at level of managing self.

problem solving approach. Oral and written communication of a leader in the project should be clear, concise and convincing.

2.3.2. Managing people

A lot of risks and uncertain circumstances are associated with projects during the life cycle. To cater such types of risks and situations, project manager must be able to manage the people though managerial and leadership skills. Every stage of a project or situation requires different leadership skills or competencies. Classification of competencies at level of managing people is presented in **Table 6**.

For effective management of projects, a project leader must be competent to manage the people and involved in recruitment and selection process of team members. The selected workforce must be on the basis of need those should be able to achieve the mission and targets of the organization. The project leader should focus on differences and values of people at workplace in addition to appreciating constructive criticism and listening differences of opinions. Project manager ensures the public interest and develop the abilities of their team members.

2.3.3. Managing projects

Leadership competence of a project manager does not mean that project would be successful but it increases the likelihood of project success. Project manager's both management and

Human capital management	It refers to building and managing workforce based on organizational goals, budget considerations, and staffing needs. A leader ensures employees are appropriately recruited, selected, appraised, and rewarded; takes action to address performance problems and manages a multi-sector workforce and a variety of work situations.
Leveraging diversity	This competency requires a leader to focus on differences and values of individuals at workplace. This focus of leaders in organization helps to achieve the visions and mission. The leaders have diversity and leverage to achieve organization outcomes.
Conflict management	Conflict management one of the key issue at workplace. A leader appreciates constructive criticism and welcome to listen differences of opinions from others. The leader avoids confrontation at workplace and encourages resolving conflicts or disagreements through constructive discussion
Public motivation	Leaders show commitment to serve the public and ensure that needs of the public are fulfilled. These leaders focus on public interest aligned with organizational objectives and culture.
Developing	Developing is an ability of leaders to develop the team members who perform to contribute toward the organization. Leaders with developing approach provide continuous feedback to improve performance and provide opportunities of formal and informal organizational learning.

Source: developed by the author based on review of literature.

Table 6. Classification of competencies at level of managing people.

leadership competencies ensure the effective management of projects through coordinated project management processes and team members. Classification of competencies at level of managing projects is presented in **Table 7**.

For successful implementation of projects, project managers focus on team building and creating an environment of trust and motivation. Project managers employ appropriate skills and knowledge to meet the expectations of both internal and external project stakeholders. Project managers are responsible for achieving time, cost and quality parameters in projects. In projects, project managers have to take right and timely decisions with consensus of all key stakeholders.

2.3.4. Managing programs

Programs are combination of multiple projects in an organization with short-term and long term objectives. Project leader motivate and guide the team members to achieve organizational goals and objective through effective implementation of programs. Classification of competencies at level of managing programs is presented in **Table 8**.

Project leader ensures effective use of technology and keep up to date on technological advancement for achieving high results and managing financial constraints. To ensure effective management of programs and achieve common goals, project leader encourages creativity and innovation, develop strategic partnerships, and identify internal and external politics.

Team building	Leaders build their team through commitment, feeling pride, and establishing environment of trust. Leaders with strong team building abilities always extend cooperation and motivate team member to achieve desired goals.
Customer service	Leaders prefer to meet the expectations of both internal and external customers. Leaders consistently deliver high quality product or services to the customer for improving their organizational performance.
Technical credibility	Leader's technical competency refers to understanding of appropriate skills, knowledge, policy and procedures. Leaders ensure to meet the technical demand of customer based on their specialized expertise.
Accountability	Leaders hold themselves accountable for achieving high quality, timely, and cost effective outcomes. To meet the objectives, a leader set priorities, accept the responsibilities in case of any mistakes, delegates work to the team, and ensure compliance with defined procedures and rules.
Decisiveness	A leader considers the impact and implications of decisions made to achieve the desired objectives in an organization. Leader ensures to take timely and effective decision based on available information.
Negotiation	Negotiation is competency of a leader to persuade others; build consensus through give and take; gain cooperation from others to obtain information and accomplish goals. Negotiation is one of the key skills of a leader to satisfy the customer or any stakeholder.

Source: developed by the author based on review of literature.

Table 7. Classification of competencies at the level of managing project.

Technology management	A leader keeps up-to-date on technological developments, makes effective use of technology to achieve results and ensure access to and security of technology systems.
Financial management	This competency refers to understanding the organization's financial processes; preparing, justifying and administering the program budget. It also involves overseeing procurement and contracting to achieve desired results; monitoring expenditures and using cost–benefit thinking to set priorities.
Creativity/innovation	It pertains to developing new insights into situations; questioning conventional approaches; encouraging new ideas and innovations; designing and implementing new or cutting edge programs/processes.
Partnering	A leader develops networks and builds alliances; and collaborates across boundaries to build strategic relationships and achieve common goals.
Political savvy	Political savvy helps leader to identify the internal and external politics that impact the work of the organization. As a result, he or she perceives organizational and political reality and acts accordingly.

Source: developed by the author based on review of literature.

Table 8. Classification of competencies at level of managing program.

3. Research methods

In this chapter, those articles were considered for review which must be published in the English and peer reviewed journal. Furthermore, specific searching keywords were used to identify relevant articles published on project manager's leadership competence during

2005–2017 from different databases including Web of Science, Emerald, Taylor & Francis, Science Direct, SAGE, IEEE, etc. The searched articles were scrutinized to avoid any duplication. Then only those studies were included which discussed project manager's leadership theory either qualitatively or quantitatively.

4. Results of research

Based on extensive literature review, findings and research gaps of earlier studies published from 2005 to 2017 on project manager's leadership competence are summarized in this section. Project managers focused on task-oriented, intellectual, managerial and emotional competencies to enhance the likelihood of project success, summary of which is presented in **Table 9**.

The researcher suggested more research should be conducted on leadership competencies involving all key project stakeholders during data collection. Situational and emotional theories

Author/year	Findings	Research gaps
Ahmed and Anantatmula (2017) [6]	• Task-oriented leadership competencies of project managers significantly and positively affect project performance in public sector projects.	• Data collection from all key project stakeholders instead of only project managers to identify other leadership factors affecting performance of projects.
Tabassi et al. (2016) [23]	• Leadership competencies directly impact the success criteria for sustainable building projects and intellectual competencies of project managers can play the most significant role in sustainable building achievements.	• Leadership behavior could be further enhanced by integrating additional constructs, such as situational theories, emotional and social dimensions as well as the moderating roles of education, experience and gender of leaders.
Ahadzie et al. (2014) [24]	• From the senior management perspective, project managers must possess leadership competences toward ensuring effective management at the design phase of the project.	• Conceptual, tender, procurement and operational phases of the project lifecycle may be considered by further research work.
Galvin et al. (2014) [25]	• There is a need to apply literature review and surveys for subsequent exploration of the importance of leadership competencies, management techniques, and styles of leadership that project managers effectively employ to manage teams and individuals.	• Limiting the participants to a maximum of 10 questions per survey, assigning a limited timeframe to collect, gather, analyze, and report survey results. • A larger sample size is certain to make the results statistically more significant.
Medina and Medina (2014) [26]	• Need to redefine project manager's long-term strategic competence management. • Need for inclusion of project manager's HRM (human resource management) practices in project management theories • There is a need for a projects perspective in HRM literature to improve the performance of organizations.	• Participants, excluding project manager or project team member roles, may provide a deeper understanding of HRM in projects. • Identify the relationship between project manager's involvement in HRM practices, motivation, and project success.

Author/year	Findings	Research gaps
Nahod et al. (2013) [27]	• Concrete evidence exists that competencies can be linked to project success. • The perception and importance of leadership competencies may help diagnose the expected project success and may increase the prospect of its timely impact on a project.	• Defining a clear rule for the impact of competences on project success. • Future research should consider leadership competencies examined at the time of appointment of project managers and analyze their subsequent impact on projects.
Müller et al. (2012) [20]	• Positive correlation exists between EQ (emotional intelligence), IQ (intellectual competencies), and MQ (managerial competencies) competencies, and project success. • The presence of project complexity as a moderator variable lowered the significance of the relationship between project manager's leadership competencies and project success.	• Future research may use the competence school of leadership and the Leadership Dimension Questionnaire (LDQ) approach derived at industry, sector, or country levels. • Further studies in assorted cultures or disciplines may enlighten other aspects of complexity in projects on account of new questions.
Anantatmula (2010) [28]	• Study found that defining roles and responsibilities is the foremost step for managing and leading projects successfully. • The leadership and technology roles could be different based on the disposition of project characteristics and the industry. • Leadership roles could be industry-specific due to differing industry-specific work cultures and competitive environments.	• Further exploration of project leadership roles for different types of projects and different industries to be taken up by increasing the data size and diversity of participants. • In addition, this model should be used in various projects and different industries to validate and confirm these results.
Battilana et al. (2010) [29]	• Mixture of leadership competencies might influence the amount of emphasis leaders put on each of the three key activities associated with the implementation of planned organizational change, which requires further investigation. • In the absence of leaders who are effective at both task-oriented and person-oriented behaviors, employing multiple changes with complementary competencies might be an effective way to address the implementation process.	• The following questions merit further exploration: • Do leaders need to emphasize all change implementation activities to successfully implement change? • Are the leaders who do so the most successful? • Answers to these questions are likely to vary depending on the type of change and the type of organization in which change is implemented.
Müller and Turner (2010) [21]	• Leadership competencies directly correlate with project success measures. • Competencies in managing resources and the strategic perspective of the project manager, in particular, correlate with the majority of success measures in projects. • Attitudes directly correlate with project success (namely customer and end-user satisfaction).	• The differences to be looked into by project type, industry, and geography. • The complexity of the human personality provides features and rich avenues for further research, which can help academics to understand the project phenomenon, and practitioners to become more successful in delivering projects.

Author/year	Findings	Research gaps
Geoghegan and Dulewicz (2008) [13]	• There exists a link between managerial competencies and project success. • The MQ leadership dimensions seem to play a significant role in influencing or affecting project success. • The leadership-project success model developed is likely to be of interest to any project-based organization.	• To establish a relationship between leadership dimensions and project success factors, broader study encompassing a cross-section of industries and countries is required that could be transferable to any organization.
Müller and Turner (2007) [30]	• Project manager's leadership competencies are correlated with project success and different leadership styles are appropriate for different types of project. • Significant correlations were found with each of the three competence types, EQ, MQ and IQ, and each of the constituent competency dimensions.	• There is a scarcity of literature addressing the need for different leadership styles for different types of projects. • Moreover, the contribution of the project manager's leadership style to project success has largely been ignored.
Prabhakar (2005) [31]	• Relationship-oriented project managers provided more successful projects. • The more experienced the project manager, the higher chances of project success. • The transformational approach was a positive role model for the team.	• Future research to define and quantitatively and relate switches in leadership approaches with success on projects.
Dulewicz and Higgs (2005) [19]	• The results support the use of leadership assessment and development for identifying potential in both public and private sector organizations. • The selection of leaders should become more accurate and development actions contained in the LDQ may report more focused relevance.	• Further research should investigate interactions between follower commitment and leader performance via self-appraisal. • Dimensions of leadership to be closely linked to various aspects of commitment.

Source: developed by the author based on review of literature.

Table 9. Summary of findings and research gaps on project manager's leadership competencies.

should be integrated to conduct research in all phases of project life cycle. Roles and responsibilities should be clearly defined in the project and a larger sample size may be collected for research other than project managers and team members. Leadership competencies should be considered at the time of appointment of project managers and their impact on projects at different industry, sector, or country level needs to be explored. The role of project leadership should also be considered by quantitative studies at the level of a cross-section of industries and countries.

The leadership styles of project managers contribute in adoption of information technology and knowledge sharing which can impact on projects. There is a strong link between transformational project leaders and satisfaction of project team members. Leadership styles adopted

at senior, middle and lower levels can be different in different projects. Summary of findings and research gaps on project manager's leadership styles is presented in **Table 10**.

Different leadership styles of project managers in different situations are required to be identified. Future research should consider collecting more responses and applying different sampling methods for collection of data. Employees other than project managers may be considered for designing their competency profiles at company level and using qualitative data.

Author/year	Findings	Research gaps
Tseng (2017) [32]	• Leadership style and organization culture significantly moderate information technology adoption and knowledge sharing intention.	• Due to inadequate respondents, future research should apply random sampling method to collect more responses.
Larsson et al. (2015) [33]	• Project managers' leadership style can affect project performance and it is a significant project success factor.	• Appropriate project managers leadership styles should be identified for different situations with different characteristics to optimize performance.
Moynihan et al. (2012) [34]	• A direct relationship exists between transformational leadership and performance management success. • Transformational leadership can observe a powerful but indirect role in "setting the table" for the success of important management processes such as performance management.	• Future research may find insignificant or a negative relationship between transformational leadership and other forms of performance information use.
Shibru and Darshan (2011) [35]	• A strong correlation exists between the components of transformational leadership and subordinate satisfaction with the leader.	• Further research should consider other industrial sectors and other leadership outcomes, i.e. effectiveness, extra effort, commitment, and 'organizational citizenship'.
Limsila and Ogunlana (2008) [36]	• Leadership styles adopted at the senior management level can be different from those adopted at the professional to technician or worker level. • Transactional leadership is chosen to lead technicians or site workers and may need to adopt transformational leadership when dealing with other professionals.	• The research findings can be verified by using other instruments to measure leadership behaviors and personal competencies or to employ several instruments simultaneously and results can then be contrasted.
Chan and Chan (2005) [37]	Found strong link between transformational and transactional leadership in organizations and project environments in the context of construction industry.	• Potential effects of the relationships between leadership styles and outcomes, at the company level using qualitative data through focus group interview. Plus there is the need for exploration to produce more interesting and rich data.

Source: developed by the author based on review of literature.

Table 10. Summary of findings and research gaps on project manager's leadership styles.

There is a need of greater commitment among project manager and human resource department. Managerial, personality and emotional intelligence competencies of project managers along with other characteristics and attitude are helpful in projects. Summary of findings and research gaps on project manager's emotional competencies is presented in **Table 11**.

Author/year	Findings	Research gaps
Blaskovics (2016) [38]	• Personal characteristics of project managers and project management attitudes are highly important for achieving project success.	• The features of the project manager other than personal characteristics and pm attitude need to be identified.
Khanaposhtayi and Abyane (2015) [39]	• Emotional intelligence competencies of project managers had high importance compared to other competencies, which should be considered by project-based organizations along with competent project managers.	• Competency profiles may be designed for the employees other than project managers working on various positions in organizations.
Montequin et al. (2015) [40]	• Most successful project managers possess common core traits, such as extroversion, rational judging and structured behaviors.	• Managerial and personality profiles should be connected to correlate personality types to leadership styles.
Obradovica et al. (2013) [41]	• A positive relationship exists between project managers' emotional intelligence and their professional success. • Improving project managers' emotional intelligence is significantly beneficial for the organization, project and team success, and project management field.	• There is a need for further research to probe for a greater commitment among both the human resource sections and project managers.
Ying et al. (2012) [42]	• The significance of emotional intelligence toward leadership effectiveness is important and there is a need to maintain a balanced interaction between emotions and intellect. • Project leaders may be trained to use a combination of emotional intelligence based competencies and a transformational leadership style for increased effectiveness.	• Future studies should consider larger sample sizes to examine intelligence competencies of individual rather than highlight the significance of specific competencies.
Clarke (2010) [43]	• A number of significant correlations exist between emotional intelligence (EI) measures and the dependent measures examined in the study. Overall EI scores were all found to be positively correlated with the project manager competence associated with teamwork and managing conflicts.	• Identify the extent to which project manager's competencies associated with emotional intelligence related abilities actually account for variations in project outcomes. Plus the significant relationships found in the study can be replicated using much larger populations.

Source: developed by the author based on review of literature.

Table 11. Summary of findings and research gaps on project manager's emotional competencies.

Author/year	Findings	Research gaps
Andersen (2013) [44]	• Different perspectives prevail among project managers and every project should be looked at from the outset and which project management perspective shall effectively rule the work of the project.	• Research may be conducted to see whether project team members have different perspectives.
Fung (2014) [45]	• Project manager's leadership roles are important influencing criteria of project team effectiveness.	• Future studies may include project team members as part of respondents to evaluate their views regarding project manager's leadership roles in developed countries.
Yang et al. (2013) [46]	• Teamwork only partially mediates the link between transactional leadership and project performance.	• Develop different models to validate and compare the efficacy through case studies. • Determine which style of project leadership is best suited for project goals and benefits that leadership competencies offer.
Kuen et al. (2009) [47]	• Empirically supported factors for project management are senior management support, project mission, project team competency, client acceptance and effective communication.	• Success factors of project management were established to develop a new area for further studies to ensure its potential for future sustainable housing.
Malach-Pines and Dvir (2008) [48]	• Significant positive correlations were found between project manager's intuition and high project uncertainty as well as complexity. • Several correlations were found both between certain personality traits and certain project types, and between certain personality traits and project success.	• Findings to be extended to other types of projects with varied cultural, industrial and organizational settings.
Müller and Turner (2007) [49]	• Team satisfaction played a critical role for all results measures. Experienced project managers appeared to have intuitively set priorities with utmost significance. • Certification was not a sufficient contributor in high performing projects. • The importance assigned to team and end-user satisfaction influences almost all reported success measures.	• The concept of project complexity is not yet well comprehended and needs further exploration. • The multitude of cultures may have an adverse effect on project results and should be addressed in future research.
Aronson et al. (2006) [50]	• Teamwork links leader personality to project performance. • Leader personality depends on the level of uncertainty that operating projects possess. • Need to re-consider hiring criteria and the provision of training for project leaders	• Data on a single project may be gathered from multiple sources. • Personality responses may be collected from leaders and performance rating data may be gathered from the senior manager overseeing the project.

Source: developed by the author based on review of literature.

Table 12. Summary of findings and research gaps on project manager's teamwork competencies.

Author/year	Findings	Research gaps
Zhang and Cheng (2015) [51]	• Effective knowledge sharing depends on knowledge leaders to develop a share vision and promote a trustworthy and collaborative environment.	• The role of knowledge leaders in regard to knowledge management practice and the active and cross-functional role of leaders as supporters both at group and individual level may be investigated.
Shokrzadesh et al. (2012) [52]	• A strong positive relationship exists between roles and knowledge management processes. • Managers can exhibit knowledge oriented roles toward employees and knowledge management practices. • The role of managers as a knowledge facilitator encourages knowledge sharing within organizations.	• Managerial roles should take account of variables of knowledge based on roles and industry, other than energy sector, for organizational benefit.
Anantatmula and Thomas (2010) [53]	• Importance and impact of some of the factors contributing to the performance of global projects vary depending upon the industry in which they were executed. • Moreover, project management practices of global projects differ from traditional, co-located, and internal projects.	• Establish the importance and effectiveness of each factor in the model. Establish dependency relations using statistical methods. • Initiate research that should validate the model.
Curran et al. (2009) [54]	• Findings indicated some implications for managerial practices. Projects may suffer from the bureaucratic hurdles that require staffing of comparably strong project leaders. • Furthermore, projects in which a low degree of trust among members is expected should be led using a dominant leadership style.	• Future research requires an examination of the leadership style in cooperative projects involving different knowledge bases or types of knowledge.
Kaulio (2008) [55]	• Courses in project management tend to have a bias toward the rational and planning perspective, comprising a number of techniques and tools. • There should be a re-balancing of the course content toward more leadership issues, such as dyadic leadership and organizational politics at least in the curriculum of advanced courses.	• Future research should address three perspectives including leadership, co-worker, and the organizational setting.
Dolfi and Andrews (2007) [56]	• Optimism in project managers is an important attributes as only 7% of "optimists" and 60% of "pessimists" in the survey negatively rated their work environment. • Findings suggest training and personal development of project managers to better cope with unique project work environment.	• Future research should explore optimism and its impact on project management workplace.

Source: developed by the author based on review of literature.

Table 13. Summary of findings and research gaps on project manager's knowledge competencies.

Project manager's emotional competencies associated with projects that account for variation in project outcomes needs to be explored using larger populations. Improving emotional competencies of project managers are beneficial for learning organization and achieving project success. Emotional intelligence competencies help project managers to encourage teamwork and manage conflicts.

The project manager should clearly identify roles of team members and encourage teamwork. In projects, teamwork is one of the key success factors which should be looked at from the outset in each project. Teamwork establishes links between project manager's leadership competence and project performance. Project managers must take care of the team to best satisfaction level and act as a mentor. Summary of findings and research gaps on project manager's teamwork competencies is presented in **Table 12**.

More research is required to check whether project team members have different perspectives on the project than a project manager. Project team members should be considered as respondents to evaluate the project manager's leadership role in different sectors and countries. Best leadership styles for team members need to be identified that can be suited in multi-culture environment.

Project managers should share the vision and knowledge among team members to transform the idea into reality through projects in a collaborative environment. The project manager should possess knowledge oriented and goal oriented competencies to ensure successful implementation of projects. The success of most of the projects depends on the capacity of the industry in which they are executed and project management practices employed. Project managers should focus on training and personal development of team members which help to cope with the unique project environment. Summary of findings and research gaps on project manager's knowledge competencies is presented in **Table 13**.

Managerial roles of project managers should be considered at industry level and the role of knowledge leaders in cross-functional both at individual and group level can be considered by the researchers and organizations. Different bases or types of knowledge need to consider along with different leadership styles in cooperative projects.

5. Discussion and conclusion

This chapter builds a chronology of project manager's leadership competencies by synthesizing extensive literature to contribute toward the body of knowledge and to provide opportunities for establishing strong links between project manager's leadership competencies and projects. Findings of literature review revealed that greater level of leadership competencies were associated with better project performance. Future directions of empirical studies highlighted in this chapter have not yet been addressed at large and demand for more research. A deeper understanding of the nature of the relationship between leadership competencies and project in different organizational environments could have implications that can help to identify strategies to increase project performance and promote positive behaviors of organizational culture.

Among many other success factors that affect project's success, leadership is one of the key contributing factors. A project manager, who acts a project leader, if have a set of requisite competencies in different organizational culture, including intellectual competencies (IQ), managerial competencies, (MQ) and emotional competencies (IQ) increases the likelihood of project success. However, the literature reveals that different project environments and conditions require a project manager to demonstrate appropriate leadership competencies that best suits for a particular culture and situation. Project manager as a project leader should be competent enough in managing self, managing people, managing project, and managing programs. On the other hand, the project manager needs to learn such leadership competencies applicable in different organizational culture for effective management of projects.

This chapter explores the extensive literature on project manager's leadership competencies, but still there are certain limitations. These leadership competencies explored in this chapter are related to projects and future research should consider reviewing such leadership competencies from other disciplines. The scope of this chapter was to highlight findings and future gaps of studies published on project manager's leadership during the last one decade. Future gaps highlighted in this chapter provide avenues for researchers to conduct further research in order to fill those gaps. Future studies may consider conducting the Systematic Literature Review and Meta Analysis studies on similar topics to provide further insights in the body of knowledge. Finally, this chapter is review based analyses of research studies and in future empirical studies may be conducted to analyze the findings of previous studies.

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Chapter 8

Transformational Leadership and Organizational Culture: Keys to Binding Employees to the Dutch Public Sector

Saniye Çelik

Additional information is available at the end of the chapter

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Abstract

In response to the growing ethnic and cultural diversity in Dutch society and its labor market, public organizations in the Netherlands are increasingly crafting diversity policies and conducting diversity interventions. Little is known, however, about the effectiveness of interventions that are used to improve employee engagement in the public sector. This chapter discusses the influence of diversity interventions related to the binding of employees with Dutch public organizations with an emphasis on the role of leadership and organizational culture. This chapter concludes that transformational leadership and organizational culture are the keys to the binding of employees to the public sector in today's diverse Netherlands. An inclusive organizational culture in which there is a room for diversity is decisive for the success of interventions used in public organizations. It also appears that managers of these organizations play a critical role. The effect of diversity interventions on the binding of employees with their organizations appears to be less when the manager uses a transformational leadership style. This demonstrates the importance of an inclusive organizational culture and a people-oriented transformational leadership style in the Dutch public sector.

Keywords: diversity intervention, transformational leadership, organizational culture, public sector, binding, the Netherlands

1. Introduction

Partly due to sociocultural and demographic developments in the society, the diversity of the Dutch workforce is changing. As of 2018, the number of people with a migration background in the Netherlands is over one-fifth of the total population (22.6%). Ten years ago, it was 16%, and the non-Western group has increased in particular because of higher birth rates and

marriages from their country of origin. The five largest migrant groups in the Netherlands today are Turkish, Moroccan, Indonesian, German, and Surinamese. About 26% of those 25 years and younger have a migration background [1]. The participation of women in the labor market has also increased in the recent decades. All these changes have repercussions on the composition of the staff in public organizations. Because of its exemplary role as the largest employer of about 1 million employees, the Dutch public sector has devoted an increasing amount of attention to promoting diversity since the 1980s. At that time, the need arose to eliminate the disadvantages faced by minorities in education and labor market and to prevent unequal treatment, prejudice, and discrimination [2].

The diversity policy of the public sector has long been characterized first and foremost by striving for a workforce composition balanced by gender, ethnic origin, and age [3]. Over the past four decades, numerous diversity interventions have been aimed at the intake, transfer, and retention of employees of non-Dutch origin in public organizations [4–5]. However, these interventions did not significantly increase the proportion of immigrants working in public organizations. Their share of public administration positions—despite all the various initiatives and policies—increased only slightly over 15 years, from 4% in 1999 to 6.5% in 2014 [2]. Part of the cause is the higher outflow among employees of non-Western origin from public organizations than their colleagues of Dutch descent. One popular argument is that employees with a migrant background do not feel at home in these organizations, while another is the lack of transfer possibilities to higher positions in public organizations [6–7]. Binding with the organization they work in is, therefore, considered to be an important objective of the diversity policy of the Dutch public sector.

Around the turn of the millennium, thinking about diversity in the Netherlands began to shift from a target group policy focused on eliminating inequities in the labor market to a business case approach [2, 8]. The business case for diversity is defined as the creation of various insights, knowledge, and skills achieved by taking advantage of differences between people. The idea is that this variety can provide more creativity and better results in teams and organizations [9]. Diversity includes visible and nonvisible differences, such as norms, values, convictions, needs, working styles, and personal characteristics [10] and can become commonplace in the workforce.

However, we know little about the effectiveness of the diversity interventions used within the Dutch public sector [11–13]. This chapter aims to examine how the various interventions influence the binding of employees with an emphasis on the role of the manager and the organizational culture, as both are seen as essential conditions to the identification and binding of employees with an organization [14–17]. The underlying motives for an organization to increase diversity and implement diversity policies are discussed along with the theories on which they are based. These motives are considered to be decisive in the desired effects being achieved within an organization [13, 18].

2. Theoretical perspectives

Several theories explain the motives of organizations in conducting diversity policy [18–20]. Ely and Thomas [19] distinguish three diversity perspectives: discrimination and fairness,

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access and legitimacy, and integration and learning. These perspectives connect diversity with the equality, legitimacy, and productivity, respectively, of the organization.

2.1. Diversity perspectives and interventions

The discrimination and fairness perspective, also called the justice perspective, takes as a moral starting point the principle that everyone is equal and must be treated equally. Differences within an organization are mentioned and emphasized as little as possible, and the explicit effect of diversity on the functioning of the organization is downplayed. This perspective focuses on providing equal opportunities for recruitment and promotion and on the suppression of prejudice and discrimination toward minority groups [21]. Organizations adopting this perspective do so out of a moral duty to reflect a just society [22] and to obtain legitimacy and public credibility [23]. The "target group" policy was developed from this perspective on diversity; it involves offering equal opportunities in recruitment and promotion to promote the proportional representation of different sociodemographic groups in organizations [24]. A vivid of an example of this kind of intervention is the use of target figures or quotas to improve the influx, promotion, and retention of target groups such as women, immigrants, and the elderly and young people [25]. This kind of intervention has been part of standard Dutch government policy since 1994.

The access and legitimacy perspective is based primarily on the opportunities that diversity offers for the market, such as gathering knowledge about different groups in society and finding links and ties with them. It is about increasing the legitimacy and recognizability of organizations among certain ethnic groups, based on the realization that the market in which organizations are active is becoming increasingly ethnically diverse. Organizations respond to this development by increasing the diversity of their staff in order to gain better access to and gain legitimacy among various groups in the market; in short, they can better meet the needs of customers and clients [19, 26]. The underlying idea is that people with a given background are more likely to understand and communicate effectively with those who share that background. Organizations aim to benefit by creating more connections between their employees and the public. A typical intervention from the access and legitimacy perspective is the diverse composition of selection teams to recognize the qualities of applicants with different backgrounds [27] and make recruitment policy and its execution as value-free as possible [28]. The focus of the "diverse composition of selection teams" intervention involves the use of both men and women and those with both native and migrant backgrounds in the selection process to increase the recognition of the qualities of diverse talent. This approach can help counter the often-observed tendency of organizations and those who work at them to select candidates who are similar to them or their current employees.

The integration and learning perspective relates to organizational processes. Organizations that operate from this perspective strive for diversity in their workforce on the premise that such differences contribute to creativity, innovation, and better products and services and can thus improve organizational performance [29]. Diversity is seen as an internal source of productivity because the knowledge, insights, and skills of employees from different ethnic or cultural groups are better utilized in practice. Organizations that strive for diversity from the

integration and learning perspective might employ these insights into reevaluate and possibly adapt their own work processes, culture, and core tasks. Differences in ethnic background and the various visions that arise from them are regarded as learning moments. Within the public sector, there have been limited interventions based on the integration and learning perspective. Some interventions are trajectories aimed at creating an open culture and explicitly appreciating the diversity in organizations [27].

2.2. The relationship between the diversity interventions and the binding of employees

Both the access and legitimacy and the integration and learning perspectives regard diversity as adding value to organizational performance. From the discrimination and fairness perspective, such differences do not matter, and the starting point is that employees must adapt to the organization, with the risk that employees feel unappreciated or disrespected [19]. It is, therefore, to be expected that interventions related to the access and legitimacy and the integration and learning perspectives will have a more favorable effect on the binding of employees with the organization than interventions related to the discrimination and fairness perspective.

2.3. Influence of inclusive organizational culture

An inclusive organizational culture means that all employees feel involved in the organization, regardless of age, gender, or cultural background; they are valued for who they are [30]. The inclusiveness of the organizational culture has been associated with positive work-related outcomes, such as greater well-being in teams, higher employee satisfaction, and more productivity and confidence in the workplace [31]. An organizational culture in which there is no openness and appreciation of differences can lead to a decline in employee involvement in and motivation for work and the organization itself [32].

In addition to the fact that employee ties are connected with the organizational outcomes noted above, there is evidence in the literature about a direct influence of the inclusiveness of an organization's culture on involvement and retention among its employees. It has been shown that openness and appreciation for diversity in the organization are accompanied by more involvement among employees [33]. Specifically, it appears that affective involvement is related to inclusiveness within the organization [34]. In addition, we know from the research that an inclusive organizational culture can limit the departure and intention to depart of employees [35]; similarly, an open organizational culture has been reported to have a positive influence on the binding of employees with the organization [10, 36]. Thus, the inclusiveness of the organizational culture can have a mediating role in the relationship between the policy interventions and the binding of employees.

2.4. Influence of leadership

In the literature, the role of managers and leaders is receiving increased attention in connection with employee performance in both public and private organizations. In addition to influencing the attitude and behavior of employees, they play a significant role in the implementation

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of human resources management (HRM) policy in an organization [37]. The precise ways that managers exert influence depend on their leadership style. Several styles of and roles in leadership have been reviewed in the literature [38]; this study focuses on transformational leadership. A transformational leader is charismatic, recognizes differences, puts the individual at the center, and increases employee motivation, trust, and satisfaction by bringing people together and changing their thinking [39]. Transformational leadership fits in well with managing diverse groups [40]. Managers who practice this style of leadership are more willing to take risks to solve problems and exploit opportunities proactively. As a result, they have a more forward-looking vision. Due to the focus that a transformational manager places on motivating, inspiring, and developing employees, this leadership style has been characterized as people-oriented [39].

Leadership style can also have a direct influence on the binding of employees. Managers with a transformational leadership style have a sharper eye for individual characteristics and will use those traits to encourage and motivate employees [38, 40]. Moreover, the emphasis is on finding new ways of working and using different perspectives to find solutions to problems [41]. Because managers implement the day-to-day practice of diversity policy and share the vision behind it, it is reasonable to expect that the relationship between policy choices and outcomes is stronger in the context of a transformational leadership style. The expectation is that the presence of a transformational leadership style will lead to more employee engagement with the organization. It is also supposed that a transformational leadership style will strengthen the relationship between diversity interventions and employee engagement with the organization.

3. Methodology of the research

The research reported was carried out using a "flash panel" of government employees that is maintained under the authority of the Dutch Ministry of the Interior and Kingdom Relations. Employees who participate in the flash panel are invited once every 2 months by E-mail to participate in a web survey lasting a maximum of 10 minutes. The employees in the flash panel cohort are representative of the workforce of the entire public sector. The flash panel contains respondents' E-mail addresses, sector of employment, position, job grade, gender, year of birth, and education level. The participants in a given survey are selected once every 2 months for research using a regional test from the overall flash panel of 35,000 employees. As a check, each study asks whether the panel member is still working in the sector, which helps keep the panel file up to date. This large-scale survey was conducted from 12 to 26 April 2011; 27,167 employees were invited. Responses were received from 11,557 employees, a response rate of 42.5%. Only respondents who had no missing scores on the variables were used in the research reported here. After removing those respondents, 4310 respondents remained, which is a final response rate of 16%. The relatively high proportion of missing scores was due to the unfamiliarity of the respondents with the diversity interventions presented. How the concepts central to this research were operationalized is detailed below.

3.1. Diversity interventions

Different perspectives on diversity can favor varied interventions. For this reason, the three most used interventions in the various diversity perspectives were presented to the respondents (see **Table 1**).

The first intervention can be placed under the discrimination and fairness (D&F) perspective because they aim to increase members of minority groups in the organization. The second intervention arises from the access and legitimacy (A&L) perspective and is designed to help the organization better reach specific target groups. The last intervention refers to the integration and learning (I&L) perspective, where learning about diversity is central.

Respondents were asked to indicate whether an intervention was present in their organization by using one of three answer options: (1) "Yes," (2) "No," and (3) "Do not know." Answers of "Do not know" are not included in the analysis below. They are classified as missing because no conclusions can be drawn about a group that does not know which interventions are used by their organization. Subsequently, dummies were created for each of the interventions: 0 = not present and 1 = present.

3.2. Binding

To measure the binding of employees within an organization, questions were asked to respondents about *affective commitment* and retention of employees. Affective involvement is an emotional bond that the employee has with his or her organization and is formed by personal and structural characteristics and work experience [42]. In addition, employees who identify themselves with the organization are more involved in the organization and motivated to commit to achieving organizational goals [43–44]. To measure affective commitment, a validated scale from previous research was used [44]. It consists of the following three statements: (1) "I feel like part of the family in my organization," (2) "My organization has a great deal of personal meaning for me," and (3) "I feel a strong sense of belonging to my organization." Respondents indicated using a five-point Likert scale the extent to which they agreed with each statement, with being (1) "Strongly agree" and (5) "Strongly disagree." To better interpret the output of the analyses, the scores have been recoded to

	Diversity interventions	Diversity perspectives		
		D&F	A&L	I&L
1	Target figures regarding the inflow and throughflow of specific groups (such as men or women, elderly or young people, or immigrants or autochthonous people) in the organization.	x		
2	The diverse composition of selection teams to recognize qualities in applicants with different backgrounds.		x	
3	Trajectories aimed at creating an open culture and the appreciation of diversity.			x

Table 1. Diversity interventions and perspectives.

(1) "Fully disagree" and (5) "Fully agree"; the higher the scores, the higher the commitment of employees. The Cronbach's α of this scale was 0.91.

The *departure intent* of employees is an important outcome to measure because it reflects whether employees are thinking of leaving an organization. Employee departure intentions were measured by presenting them with the following statement: "I intend to look for work at another organization in the coming year" [25]. The respondent used a five-point Likert scale to indicate the extent he or she agreed with the statement was (1) "Strongly agree" and (5) "Strongly disagree." To include this variable in the analysis, a dummy was subsequently made, with the original scores (1) "Strongly agree" and (2) "Somewhat agree" indicating that the respondent was inclined to depart and the other scores indicating that the respondent was not inclined to leave. The dummy variables were 1 = not inclined to leave and 0 = inclined to leave; as to binding, 1 means a high connection with the organization and 0 means a low connection with the organization.

3.3. Inclusive organizational culture

To measure the inclusiveness of an organization's culture, an existing set of six previously unvalidated questions was used by the national government in employee satisfaction surveys to gain an insight into the degree of perceived inclusiveness and social safety among employees. These six questions were derived from five key questions posed by the oil company Shell to determine the degree of inclusiveness their employees felt [45]. Because these issues relate to the extent to which employees feel valued and secure within their organization, we speak here of inclusive organizational culture, which, after all, involves the combination of safety [46–47] and appreciation [48].

The six statements in **Table 2** about inclusive organizational culture (IC) were presented to the respondents.

In the original questionnaire, a five-point Likert scale was used for responses ranging from (1) "Strongly agree" to (5) "Strongly disagree." In order to better interpret the output of the analyses, the scores have been recoded to (1) "Fully disagree" and (5) "Fully agree." The higher the scores, the more the organizational culture was perceived as inclusive. The Cronbach's α of this scale was 0.90.

IC1	Where I work, I am treated with respect
IC2	I can openly express my opinion without fear of negative consequences
IC3	My organization has a working environment, where different ideas and perspectives are valued
IC4	My organization is free of discrimination
IC5	My organization is free of intimidation
IC6	The decisions made by managers about employees are fair

Table 2. Statements for inclusive organizational culture (IC).

TL1	My leader considers my needs over his or her own needs
TL2	I trust my leader
TL3	My leader is consistent in conduct with underlying ethics, principles, and values
TL4	My leader emphasizes the importance of having a collective sense of mission
TL5	My leader behaves in ways that stimulate individual and team spirit
TL6	My leader behaves in ways that motivate by providing meaning and challenge to employees' work
TL7	My leader stimulates being innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways
TL8	My leader seeks different points of view when solving problems
TL9	My leader suggests new ways of working and different perspectives
TL10	My leader recognizes individual differences in terms of needs and desires
TL11	My leader helps employees to develop their strengths
TL12	My leader pays attention to each individual's need for achievement and growth by acting as a coach or a mentor

Table 3. Propositions for transformational leadership (TL).

3.4. Transformational leadership

Respondents were asked about the direct supervisor's leadership style. The items on transformational leadership (TL) are derived from the operationalization of Bass et al. [41]. Respondents indicated on a five-point Likert scale the extent to which they agreed with each statement, with being (1) "Strongly agree" and (5) "Strongly disagree." The propositions are provided in **Table 3**.

The Cronbach's α of this scale was 0.96. Finally, two control variables were included in the study: the ethnic origin and gender of the respondent.

4. Results

The SPSS and AMOS programs were used for the statistical analyses. The Cronbach's αs, averages, standard deviations, and correlations of the research variables are presented in **Table 4**. The "trajectories for an open culture" intervention was the most frequently observed by the respondents. The "diverse composition of selection teams" and "projects for an open culture" diversity interventions correlated positively with organizational culture. Organizational culture correlated positively with the commitment of employees. From the correlations, it can also be argued that transformational leadership is related to the two policy interventions (diverse selection teams, routes for open culture), the organizational culture, and the binding of employees (retention, affective commitment). The scales of transformational leadership and organizational culture appear to correlate highly (0.66), which can partly be attributed to the items of transformational leadership that relates to diversity (TL7, TL8, and TL10).

	α	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Target figures	—	0.32	0.47	1								
2. Diverse selection teams	—	0.22	0.41	0.34**	1							
3. Routes for open culture	—	0.37	0.48	0.33**	0.36**	1						
4. Inclusive culture	0.90	3.58	0.92	0.02	0.15**	0.22**	1					
5. Affective commitment	0.91	3.98	0.98	0.08**	0.15**	0.21**	0.49**	1				
6. Retention	—	3.8	1.37	0.13	0.05**	0.11**	0.23**	0.29**	1			
7. Transformational leadership	0.96	3.41	0.95	0.09**	0.19**	0.23**	0.26**	0.47**	0.25**	1		
8. Ethnicity	—	0.08	0.27	0.01	−0.01	−0.01	−0.03**	−0.02*	−0.03**	−0.02	1	
9. Gender	—	0.41	0.49	−0.08**	−0.03*	−0.06**	0.00	0.00	−0.02	0.00	0.03**	1

*Correlations are significant at the .01 level (2-tailed).
**Correlations are significant at the .05 level (2-tailed).

Table 4. Cronbach's αs, averages (M), standard deviations (SDs), and Pearson correlations.

4.1. Structural equation modeling analysis

Using AMOS, structural equation modeling (SEM) analysis was applied to the data. SEM analysis is a quantitative statistical method that combines two statistical analyses, path analysis and factor analysis. The scales constructed for organizational culture, affective commitment, or transformational leadership were not used directly; instead, the variables were re-estimated in measurement models with the help of confirmatory factor analysis (CFA).

The first model with affective commitment as an outcome measure showed the following goodness-of-fit statistics: $\chi^2 = 7909.50$, $df = 291$, $p < 0.00$, $\chi^2/df = 27.18$; comparative fit index (CFI) = 0.90; and root mean squared error of approximation (RMSEA) = 0.08. Because of the high N, χ^2 was not a good measure to determine the fitness of the model. The CFI and RMSEA values show the extent to which the model fits the data [49]. The CFI did not meet the requirement of a value of > 0.95, and the RMSEA did not meet the threshold value of <0.06 [49, 50]. As a result, it could be argued that improvements could still be made in the model. For example, some interference variances were found to correlate with one another, indicating that the relevant items had unexplained variance in common. For the leadership scale, this was the case for the variances of the items belonging to the intellectual stimulation dimension (items TL7, TL8, and TL9) and two items of the individualized consideration dimension (items TL11 and TL12). In addition, two items (IC4 and IC5) of the inclusive culture scale had unexplained variances in common. This second model showed a better fit, with $\chi^2 = 4288.16$, $df = 286$, $p < 0.00$, $\chi^2/df = 14.99$, CFI = 0.95, RMSEA = 0.06. The model with retention as the dependent variable showed the following goodness-of-fit measures: $\chi^2 = 3701.17$, $df = 240$, $p < 0.00$, $\chi^2/df = 15.42$, CFI = 0.95, RMSEA = 0.06; they also fulfilled the fitness requirements of a model [50].

The CFA conducted for the organizational culture, transformational leadership, and affective engagement variables showed that all those variables contributed significantly ($p < 0.00$) and

that all factor loads were above 0.5. The factor loads and standardized path coefficients representing the strength of the relationship between the variables are shown in **Table 5**. The results for the model with retention as the dependent variable are presented in **Table 6**.

The policy "target figures" intervention (discrimination and fairness perspective) had a very weak negative relationship with the entrenched inclusive culture ($\beta = -0.03$, $p < 0.01$). One explanation may be that the use of target figures underlines differences in organizations and can thus increase categorization [19]. This can limit the degree to which an organization's culture is perceived as inclusive and, as a result, the extent to which people feel themselves involved in the organization. The "trajectories aimed at creating an open culture and appreciation of diversity" intervention (integration and learning perspective) had a weak positive effect ($\beta = 0.08$, $p < 0.00$) on organizational culture, but the "diverse composition of selection teams" policy intervention (access and legitimacy perspective) did not have a significant relationship with the organizational culture in this model. Based on these findings, it can be stated that there is a negative relationship between the "target figures" intervention and an inclusive organizational culture and a positive relationship between the "creating an open culture" intervention and an inclusive organizational culture.

An inclusive culture appears to play an important role in increasing employees' binding with the organization; it has a direct positive influence on the affective commitment ($\beta = 0.39$, $p < 0.00$) and a positive influence on the retention ($\beta = 0.18$, $p < 0.00$) of employees. As employees experience an organizational culture in which they feel valued and secure within the organization, the binding between them and the organization increases. These results show that an inclusive organizational culture is an important factor in employee commitment.

The "target figures" intervention had a direct but a very weak positive effect on the affective commitment of employees ($\beta = 0.03$, $p < 0.05$) and a very weak negative indirect effect ($\beta = -0.01$, $p < 0.01$) through an inclusive organizational culture. The reason for the direct positive effect of target figures on affective commitment is not immediately obvious. Perhaps the pursuit of targets has a positive effect at least in the organization, but the elaboration of the policy was ultimately not significant because this policy negatively affected the inclusiveness of the organizational culture. The "trajectories aimed at creating an open culture and appreciation of diversity" intervention (integration and learning perspective) had a directly weak positive effect on the affective commitment of employees ($\beta = 0.05$, $p < 0.00$). For this intervention, a weak indirectly significant positive effect via organizational culture applied to the affective commitment of employees ($\beta = 0.03$, $p < 0.00$).

In addition, the "diverse composition of selection teams" policy intervention (access and legitimacy perspective) had no direct or indirect effect on the affective commitment of employees. An inclusive culture, therefore, appears to have a mediating role in the relationship between policy interventions and employee engagement. This only applies to the "target figures" and "creating an open culture" interventions and the affective commitment of employees.

The results of the SEM analysis (see **Table 6**) show that none of the interventions have a significant direct effect on the retention of employees. The effect of these interventions on retention is likely explained entirely by their contribution to the inclusiveness of the

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Standardized regression effects			
Measurement paths			
IC1	←	Inclusive culture	0.81^{NA}
IC2	←	Inclusive culture	0.87^{***}
IC3	←	Inclusive culture	0.85^{***}
IC4	←	Inclusive culture	0.55^{***}
IC5	←	Inclusive culture	0.73^{***}
IC6	←	Inclusive culture	0.81^{***}
TL1	←	Transformational leadership	0.68^{***}
TL2	←	Transformational leadership	0.88^{***}
TL3	←	Transformational leadership	0.85^{***}
TL4	←	Transformational leadership	0.72^{***}
TL5	←	Transformational leadership	0.88^{***}
TL6	←	Transformational leadership	0.84^{***}
TL7	←	Transformational leadership	0.79^{***}
TL8	←	Transformational leadership	0.82^{***}
TL9	←	Transformational leadership	0.72^{***}
TL10	←	Transformational leadership	0.84^{***}
TL11	←	Transformational leadership	0.82^{***}
TL12	←	Transformational leadership	0.83^{NA}
B1	←	Affective commitment	0.81^{NA}
B2	←	Affective commitment	0.90^{***}
B3	←	Affective commitment	0.93^{***}
Structural paths			
Inclusive culture	←	Target figures	-0.03^{**}
Inclusive culture	←	Routes for open culture	0.08^{***}
Inclusive culture	←	Diverse selection teams	0.02
Affective commitment	←	Target figures	0.03^{*}
Affective commitment	←	Routes for open culture	0.05^{***}
Affective commitment	←	Diverse selection teams	0.03
Affective commitment	←	Inclusive culture	0.39^{***}
Affective commitment	←	Gender (female)	0.01
Affective commitment	←	Ethnic origin (minorities)	−0.01
Affective commitment	←	Transformational leadership	0.21^{***}
Inclusive culture	←	Transformational leadership	0.72^{***}
Inclusive culture	←	Gender (female)	−0.02
Inclusive culture	←	Ethnic origin (minorities)	−0.02

Standardized regression effects			
Indirect effects			
Affective commitment	←	Inclusive culture←Target figures	-0.01^{**}
Affective commitment	←	Inclusive culture←Routes for open culture	0.03^{***}
Affective commitment	←	Inclusive culture←Diverse selection teams	0.01
Affective commitment	←	Inclusive culture←Transformational leadership	0.28^{***}
R^2	Inclusive culture		0.52
R^2	Affective commitment		0.32

Note: $N = 4.310$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.00$; NA = not applicable (set parameter).

Table 5. Results of SEM analyses of affective commitment.

Standardized regression effect			
Measurement paths			
IC1	←	Inclusive culture	0.81^{NA}
IC2	←	Inclusive culture	0.87^{***}
IC3	←	Inclusive culture	0.85^{***}
IC4	←	Inclusive culture	0.55^{***}
IC5	←	Inclusive culture	0.73^{***}
IC6	←	Inclusive culture	0.81^{***}
TL1	←	Transformational leadership	0.68^{***}
TL2	←	Transformational leadership	0.88^{***}
TL3	←	Transformational leadership	0.85^{***}
TL4	←	Transformational leadership	0.72^{***}
TL5	←	Transformational leadership	0.88^{***}
TL6	←	Transformational leadership	0.84^{***}
TL7	←	Transformational leadership	0.79^{***}
TL8	←	Transformational leadership	0.82^{***}
TL9	←	Transformational leadership	0.72^{***}
TL10	←	Transformational leadership	0.84^{***}
TL11	←	Transformational leadership	0.82^{***}
TL12	←	Transformational leadership	0.83^{NA}
Structural paths			
Inclusive culture	←	Target figures	-0.03^{**}
Inclusive culture	←	Routes for open culture	0.08^{***}

Standardized regression effect			
Inclusive culture	←	Diverse selection team	0.02
Retention	←	Target figures	0.0
Retention	←	Routes for open culture	0.01
Retention	←	Diverse selection teams	−0.0
Retention	←	Inclusive culture	0.18^{***}
Retention	←	Gender (female)	-0.05^{***}
Retention	←	Ethnic origin (minorities)	-0.05^{***}
Retention	←	Transformational leadership	0.21^{***}
Inclusive culture	←	Transformational leadership	0.72^{***}
Inclusive culture	←	Gender (female)	−0.02
Inclusive culture	←	Ethnic origin (minorities)	−0.02
Indirect effects			
Retention	←	Inclusive culture← Target figures	-0.01^{**}
Retention	←	Inclusive culture←Routes for open culture	0.01^{***}
Retention	←	Inclusive culture←Diverse selection teams	0.0
Retention	←	Inclusive culture←Transformational leadership	0.13^{***}
R^2	Inclusive culture		0.52
R^2	Retention		0.14

Note: $N = 4.310$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.00$; NA = not applicable (set parameter).

Table 6. Result SEM analyses of retention.

organizational culture. The "target figures" intervention appears to have a very weak negative indirect effect through the inclusiveness of the organizational culture on the retention of employees ($\beta = -0.01$, $p < 0.01$). This means that the "target figures" intervention reduces the extent to which employees experience an inclusive culture, as a result of which the retention of employees is somewhat reduced. By contrast, the "trajectories aimed at creating an open culture" intervention has a very weak positive indirect effect, through the inclusiveness of the culture, on retention ($\beta = 0.01$, $p < 0.00$). This intervention promotes the extent to which employees experience an inclusive culture and contributes to the retention of employees.

Transformational leadership appears to be important for the binding of employees. The results showed that transformational leadership is strongly and positively connected with the affective commitment of employees ($\beta = 0.21$, $p < 0.00$) and strongly positively related to their retention ($\beta = 0.21$, $p < 0.00$). Moreover, a transformational leadership style is closely related to the inclusiveness of the organizational culture ($\beta = 0.72$, $p < 0.00$), and the results also showed a significant indirect effect of transformational leadership through inclusive culture on the affective commitment ($\beta = 0.28$, $p < 0.00$) and retention ($\beta = 0.13$, $p < 0.00$) of employees. This, again, emphasizes the importance of an inclusive organizational culture.

To focus more directly on the influence of transformational leadership, multivariate analyses were performed in SPSS, with affective commitment and retention as dependent variables. **Tables 7** and **8** present the results of the multivariate analysis of affective commitment and retention, respectively. In both tables, transformational leadership in the second model has been added to the analysis. To measure the interaction effect between diversity interventions and transformational leadership, interaction variables were created in the third model.

Table 7 confirms that transformational leadership has a strong positive effect on commitment ($\beta = 0.457$, $p < 0.001$). This means that the more a manager uses a transformational leadership style, the higher the commitment of employees. It can also be concluded that the influence of the intervention has weakened "diverse selection teams" ($\beta = 0.033$, $p < 0.005$) and "trajectories for creating an open culture" ($\beta = 0.081$, $p < 0.001$) by the inclusion of transformational leadership. Furthermore, Model 3 shows that there is only a weak and negative interaction effect between the transformational leadership and the intervention pathways ($\beta = -0.039$, $p < 0.05$). This means that the effect of the diversity interventions on employee commitment is not strengthened, as was expected, but in fact, it becomes weaker as managers show more transformational leadership.

	Model 1			**Model 2**			**Model 3**		
	β	**Std. Error**	**Beta**	***β***	**Std. Error**	**Beta**	***β***	**Std. Error**	**Beta**
Ethnic origin	−0.034*	0.015	−0.034	−0.023	0.013	−0.023	−0.022	0.013	−0.022
Gender	0.008	0.015	0.008	0.005	0.013	0.005	0.006	0.013	0.006
Preferential policy	0.028	0.021	0.024	0.030	0.019	0.026	0.029	0.019	0.025
Target figures	−0.006	0.022	−0.005	0.001	0.019	0.001	0.001	0.019	0.001
Specific groups	0.013	0.021	0.012	−0.018	0.018	−0.015	−0.016	0.018	−0.014
Diverse selection teams	0.081***	0.018	0.074	0.033*	0.016	0.030	0.038*	0.018	0.035
Networks	−0.021	0.020	−0.018	−0.004	0.017	−0.004	−0.001	0.018	0.001
Trajectories	0.178***	0.019	0.163	0.081***	0.017	0.074	0.090***	0.018	0.082
Training courses	0.026	0.019	0.023	0.010	0.017	0.009	0.009	0.017	0.008
Transformational leadership				0.457***	0.013	0.479	0.442***	0.014	0.463
Interaction between TL and diverse selection teams							−0.007	0.015	−0.007
Interaction between TL and trajectories							−0.039*	0.016	−0.037
Constant	4.067***	0.015		4.070***	0.014		4.083***	0.015	
R^2	0.219			0.512			0.513		
N	4.310			4.310			4.310		

Note: (*Z* scores) *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 7. Influence of interventions and transformational leadership on affective commitment (linear regression).

	Model 1			Model 2			Model 3		
	β	Wald	Exp (B)	β	Wald	Exp (B)	β	Wald	Exp (β)
Ethnic origin	−0.121***	12.949	0.886	−0.113**	10.446	0.893	−0.113**	10.297	0.894
Gender	−0.084*	5.036	0.919	−0.092*	5.537	0.912	−0.092*	5.559	0.912
Preferential policy	−0.001	0.001	0.999	0.001	0.000	1.001	−0.002	0.001	0.998
Target figures	−0.057	1.068	0.945	−0.052	0.798	0.950	−0.052	0.824	0.949
Specific groups	0.002	0.001	1.002	−0.044	0.645	0.957	−0.052	0.958	0.949
Diverse selection teams	0.100*	4.849	1.113	0.047	0.849	1.048	0.043	0.731	1.044
Networks	−0.016	0.092	0.985	0.008	0.023	1.008	0.005	0.010	1.005
Trajectories	0.211***	17.038	1.234	0.081	2.286	1.084	0.083	2.399	1.087
Training courses	0.026	0.263	1.026	0.004	0.005	1.004	0.003	0.004	1.003
Transformational leadership				0.599***	261.250	1.820	0.587***	207.811	1.799
Interaction between TL and diverse selection teams							−0.052	1.301	0.949
Interaction between TL and trajectories							−0.005	0.013	0.995
Constant	1.376***	1099	3.901	1.480***	1110	4.374	1.487***	1093	4.425
R^2	0.02			0.11			0.12		
N	4.310			4.310			4.310		

Note: (Z scores) $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

Table 8. Influence of interventions and transformational leadership on departure intent (logistic regression).

Table 8 confirms that as transformational leadership increases, employees will be less inclined to leave the organization. As with commitment, the manager plays a crucial role in employee departure intention. Model 2 also shows that the influence of the "diverse selection teams" and "trajectories for the creation of an open culture" interventions disappears through the inclusion of transformational leadership.

5. Discussion and conclusions

There are several conclusions we can distill from this research.

5.1. Main conclusions

First, diversity interventions based on the legitimacy and creativity perspective promote an inclusive organizational culture and are therefore more effective for the binding of employees to the organization than interventions based on a target group policy. The "creating an open culture" intervention appears to strengthen the binding of employees with the organization. This intervention focuses on differences between employees and seeks to influence the

behavior of employees and, as a result, the culture within the organization. Inclusive organizational culture is thus an important condition for the commitment of employees to the organization. This confirms previous research showing that a culture with room for employee uniqueness positively influences binding [6, 10, 33, 36].

Second, a transformational leadership style influences the binding of employees within the organization. The role of the manager is of great importance and has a strong influence on employees' commitment and their willingness to leave the organization. The more a manager uses a transformational leadership style, the higher the affective commitment and the less employees intend to leave. This is explained by the fact that the transformational manager, directly and indirectly, influences the employee and is the interpreter of the organization's policies, including but not limited to its HRM policies. A transformational leadership style also ensures that attention is paid to individual differences. A manager with a transformational leadership style focuses on building trusting relationships with employees to motivate and inspire them. The manager takes a proactive approach to the organization's employees and tries to get the very best out of them. One requirement revealed by this research is that diversity policies must be structured so as to support managers. This is also necessary to reinforce a transformational leadership style in the organization.

Third, the effect of interventions on the binding of employees is reduced when the manager uses a transformational leadership style [14]. This indirectly affirms the previous conclusion. This research shows that managers have a key position in organizational effectiveness. The more a transformational leadership style is used, the stronger the commitment of employees to the organization, regardless of their ethnic or cultural background. Employees are already more involved in the organization and less inclined to leave it. Transformational leaders have an eye for differences in individuals that can benefit the organization. This result offers insights into the most desirable public service management qualities and contributes to the discussion about which style of management will best help the Dutch public sector manage and benefit from diversity.

Finally, this research concludes that a transformational leadership style can weaken the effect of interventions to promote the binding of employees with the organization, such as programs designed to create an open culture. This may occur because different characteristics of a transformational leader, such as responding to individual needs and promoting a better organizational climate, overlap with the theory and practice of a given diversity intervention.

5.2. Implications and recommendations

In any case, the research emphasizes the importance of interventions aimed at the role of managers and their leadership style in the binding of employees within the public sector.

Diversity is a reality, but inclusion is still a choice in organizations and societies. The essence of diversity is that differences are there! No one and no organization can ignore the differences among individuals. That is why diversity should be accepted as a matter of course. Diversity

delivers new insights and innovations and brings quality and strength to organizations. But there is also a downside: diversity sometimes leads to problems and conflicts between people, even in organizations. It is not always and everywhere rosy. There is still much work to do to make diversity a standard feature of the workforce and daily life. In this chapter, some points of view are presented, along with paths and patterns that foster inclusion in organizations where everyone may be different.

One way to make diversity the most ordinary thing in organizations is to approach it from a system of values, meaning that everyone acts from deeper values such as freedom, equality, and mutual trust—the common values that are deeply rooted in society [8]. A focus on shared values can contribute to one's connection with one another, increase inclusion in organizations, and maximize talent utilization by embracing differences. More importantly, those values form the basis of organizational perspectives such as creativity, binding, and equality to stimulate diversity. When interventions are logically driven from these perspectives and underlying values, their effectiveness is bound to improve.

In summary, this study shows that an inclusive organizational culture and a transformational leadership style play a more important role in the binding of employees than the diversity interventions themselves.

5.3. Limitations of the research and future studies

These results also offer opportunities for further research into the interconnections among the effectiveness of interventions, a transformational leadership style, and an inclusive organizational culture. From the perspective of change management, the anchoring of diversity in the behavior and culture of people and organizations needs more attention. Diversity is not merely an issue of human resources management; it is a leadership issue and a part of the overall organizational development. Diversity is not an end in itself; the organization's ambitions are at the center, and the differences between people can contribute to realizing those ambitions. One necessary condition is a corporate culture where differences are recognized and embraced. This needs more in-depth research. In the public sector—not only in the Dutch example but also in the wider European context—diversity is not seen. If differences are seen, recognized, and given room, individuals can develop themselves more fully and can contribute more to the organization [8]. However, reality is stubborn. Think of the downside of diversity, such as conflicts that arise through differences between individuals and in the organizational context. Leadership is essential to allowing differences to flourish and increasing their added value contribution.

Conflict of interest

The data used in the chapter based on the dissertation research [2] carried out by the author Saniye Çelik.

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It is stated that the concept of organizational culture reveals that the behavior of people in organizations is highly influenced by the established attitudes and values of their members, and objective characteristics of organizational culture are everything that exists regardless of its members' thoughts. A lot of researchers of organizational culture continue to look for answers about these relationships. Thus, organizational culture is a phenomenon that constantly receives both researchers' and practitioners' attention. This book supplies the reader with a comprehensive overview of the latest results of studies carried out by scientists from different countries. A lot of attention is given to role of national cultures, organizational culture as a determinant of competitiveness, organizational structures, model of culture for innovation, transformational leadership, leadership competencies, project activity etc.

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